Cross Reference
NPL-F2U8-2-73

Adjusted final
NPL-U7-2-227
2/90

PASCO SANITARY LANDFILL
Pasco, Washington

Conditions at listing (June 1988): Pasco Sanitary landfill covers 250 acres 1.5 miles northeast of Pasco, Franklin County, Washington, in an area dominated by irrigated agricultural fields and range land. The landfill is privately owned and operated and was converted from a burning dump to a sanitary landfill in 1971. Since 1982, it has had a conditional use permit from the Washington Department of Ecology (WDOE) to accept municipal wastes.

In 1972, Resource Recovery Corp. leased a portion of the landfill and operated a regional hazardous waste disposal site under a WDOE permit until December 1974, when the lease terminated.

According to WDOE files, over 47,000 drums of hazardous substances including paint wastes, pesticides, organic solvents, cadmium, and mercury, were deposited in the leased portion of the landfill. In 1974, the area was covered by 3 feet of soil.

In 1985, EPA detected tetrachloroethylene and trichloroethylene in on-site ground water. A well on-site supplies drinking water to two nearby residences. Ground water within 3 miles of the site is used by over 1,000 people for drinking and is also used to irrigate almost 10,000 acres of land.

In October 1986, WDOE issued an Administrative Order requiring Resource Recovery Corp. to monitor on-site wells on a quarterly basis. The company is currently complying with the order.

Status (December 1989): Resource Recovery Corp. has completed a hydrogeological evaluation of the site and continues to monitor on-site wells on a quarterly basis.

NPL-U7-2-8

National Priorities List

Superfund hazardous waste site listed under the
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended in 1986

PASCO SANITARY LANDFILL
Pasco, Washington

Pasco Sanitary Landfill covers 250 acres 1.5 miles northeast of Pasco, Franklin County, Washington, in an area dominated by irrigated agricultural fields and range land. The landfill is privately owned and operated and was converted from a burning dump to a sanitary landfill in 1971. Since 1982, it has had a conditional use permit from the Washington Department of Ecology (WDOE) to accept municipal wastes.

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In October 1986, WDOE issued an Administrative Order requiring Pasco to monitor on-site wells on a quarterly basis. The company is currently complying with the order.

Facility namo: Pasco Sanitary Landfill

Location: Pasco, Washington

EPA Region: 10

Person(s) in charge of the facility: Larry Dietrich

Name of Reviewer: Lynn Guilford   Date: 5/27/87

General description of the facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concem; types ot information needed for rating; agency action, etc.)

Resource Recovery Corporation operated a portion of Pasco Sanitary Landfill as a hazardous waste disposal site from 1972 to 1974. Currently the disposal areas are all covered with three feet of soil. This cover gives both the surface water and direct contact routes scores of 0. The ground water route has an observed release and a large ground water population giving the site an overall score of 44.46

Scores: S_M = 44.46 (S_{gw} = 76.92 S_{sw} = 0 S_a = 0)

S_{FE} = 0

S_{DC} = 0

FIGURE 1
HRS COVER SHEET

7-16-87

Ground Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
$\boxed{1}$ Observed Release	0 45	1	45	45	3.1
If observed release is given a score of 45, proceed to line $\boxed{4}$. If observed release is given a score oi 0, proceed to line $\boxed{2}$.					
$\boxed{2}$ Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 3	2		6	
Net Precipitation	0 1 2 3	1		3	
Permeability of the Unsaturated Zone	0 1 2 3	1		3	
Physical State	0 1 2 3	1		3	
	Total Route Characteristics Score			15	
$\boxed{3}$ Containment	0 1 2 3	1		3	3.3
$\boxed{4}$ Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 12 15 18	1	12	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	8	8	
	Total Waste Characteristics Score		20	26	
$\boxed{5}$ Targets					3.5
Ground Water Use	0 1 2 3	3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1	40	40	
	Total Targets Score		49	49	
$\boxed{6}$ If line $\boxed{1}$ is 45, multiply $\boxed{1}$ x $\boxed{4}$ x $\boxed{5}$ It line $\boxed{1}$ is 0, multiply $\boxed{2}$ x $\boxed{3}$ x $\boxed{4}$ x $\boxed{5}$			44100	57.330	
$\boxed{7}$ Divide line $\boxed{6}$ by 57,330 and multiply by 100		S_{gw} =	76.92		

FIGURE 2
GROUND WATER ROUTE WORK SHEET

7-17-87

Surface Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1		45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 2 3	1		3	
1-yr. 24-hr. Rainfall	0 1 2 3	1		3	
Distance to Nearest Surface Water	0 1 2 3	2		6	
Physical State	0 1 2 3	1		3	
	Total Route Characteristics Score		0	15	
3 Containment	0 1 2 3	1	0	3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 18	1	0	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	0	8	
	Total Waste Characteristics Score		0	26	
5 Targets					4.5
Surface Water Use	0 1 2 3	3	0	9	
Distance to a Sensitive Environment	0 1 2 3	2	0	6	
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40	
	Total Targets Score		0	55	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				64,350	
4 Divide line 6 by 64,350 and multiply by 100		S_{SW} =	0		

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

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7-17-87

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
[1] Observed Release	0 45	1	0	45	5.1
Date and Location:					
Sampling Protocol:					
If line [1] is 0, the S_a = 0. Enter on line [5]. If line [1] is 45, then proceed to line [2].					
[2] Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
[3] Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
	Total Targets Score			39	
[4] Multiply [1] x [2] x [3]				35,100	
[5] Divide line [4] by 35,100 and multiply by 100	S_a = 0				

FIGURE 9
AIR ROUTE WORK SHEET

[signature] 7-17-87

	S	S^2
Groundwater Route Score (S_{gw})	76.92	5916.69
Surface Water Route Score (S_{sw})	0	0
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		5916.69
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		76.92
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		44.46

FIGURE 10
WORKSHEET FOR COMPUTING S_M

7-17-87

Fire and Explosion Work Sheet					
Rating Factor	Assigned Value (Circle Ono)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
	Total Targets Score			24	
4 Multiply 1 x 8 x 3				1,440	
8 Divide line 4 by 1,440 and multiply by 100		S_{FE} = 0			

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

[signature] 9-17-87

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Incident	0 45	1		45	8.1
If line 1 is 45, proceed to line 1 If line 1 is 0, proceed to line 1					
1 Accessibility	0 1 2 3	1	1	3	8.2
1 Containment	0 15	1	0	15	8.3
4 Waste Characteristics Toxicity	0 1 2 3	5	0	15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 2 3 4 5	4	0	20	
Distance to a Critical Habitat	0 1 2 3	4	0	12	
Total Targets Score			0	32	
6 If line 1 is 45, multiply 1 x 1 x 1 If line 1 is 0, multiply 1 x 1 x 1 x 1			0	21,600	
1 Divide line 1 by 21,600 and multiply by 100		S_{DC} =	0		

FIGURE 12
DIRECT CONTACT WORK SHEET

7-17-8

ecology and environment, inc.
101 YESLER WAY, SEATTLE, WASHINGTON, 98104, TEL. 206/624-9537
International Specialists in the Environment

DOCUMENTATION RECORDS

FOR

HAZARD RANKING SYSTEM

Instructions: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility/site. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste Quantity = 4320 drums plus 800 cubic yards of sludges"). The source of the information should be provided for each entry and should be a biographical-type reference that will make the source used for the data point easier to find. Include the location of the source and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME: Pasco Sanitary Landfill

LOCATION: Kahlotus Road and Highway 12
Pasco, Washington 99301

REVIEWER: Lynn Guilford

TDD: TDD F10-8701-04

ECOLOGY AND ENVIRONMENT, INC.

DATE: June 1987

7-17-87

recycled paper

GROUND WATER ROUTE

1. OBSERVED RELEASE

1a. Contaminants Detected (5 maximum) in Ground Water

Tetrachloroethylene was found in monitoring well EE2.
Trichloroethylene was found in monitoring wells EE2, EE3, and JUB 2.
The levels found were significantly over background (JUB-CNTR)

- Rationale for attributing the contaminants to the facility:

These compounds, tetrachloroethylene and trichloroethylene, were not found in background wells, but were only found in wells downgradient and adjacent to zone A and the old landfill burn and demolition disposal area. Paint wastes were disposed in Zone A.

HRS Section Score: 45 (Ref. 1 p.5a)

* * * * * * * * * * *

2. ROUTE CHARACTERISTICS

2a. Depth to Aquifer of Concern

- Name and description of aquifer(s) of concern:
Water table aquifer, unconfined, which overlies Yakima Basalts. Groundwater occurs 38.5 to 68.7 feet below ground surface at site. See table 4.1 and figures 4.2 and 4.3 of Reference 1 for description of geologic units and cross-sections.

HRS Section Score: (Ref.)

2b. Net Precipitation

- Mean annual or seasonal precipitation (list months for seasonal):

- Mean annual lake evaporation rate (list months for seasonal):

- Net precipitation (subtract above figures):

HRS Section Score: (Ref.)

[signature] 7-17-85

2c. Permeability of Unsaturated Zone

- Soil type in unsaturated zone:

- Permeability associated with soil type:

HRS Section Score: (Ref.)

2d. Physical State

- Physical state of substance at time of disposal (or at present time for generated gases):

HRS Section Score: (Ref.)

* * * * * * * * * * *

3. CONTAINMENT

3a. Containment

- Method(s) of waste or leachate containment evaluated:

- Method with highest score:

HRS Section Score: (Ref.)

* * * * * * * * * * *

4. WASTE CHARACTERISTICS

4.a Toxicity and Persistence

- Compound(s) evaluated:

Compound	Toxicity	Persistence	Total
Trichloroethylene	2	2	12
Tetrachloroethylene	2	2	12

- Compound(s) with highest score:

Tetrachloroethylene and Trichloroethylene

HRS Section Score: 12 (Ref. 2)

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4b. Hazardous Waste Quantity

- Total amount of hazardous substance at the facility, excluding those with a containment score of zero. (Give a reasonable estimate, even if the quantity is above maximum.):

  The total waste quantity is estimated to be approximately 47,000 drums.

- Basis of estimating and/or computing waste quantity (must be documented quantity and not assumed):

  Paint Wastes - 26,426 drums
  2,4-D Mfg. wastes - 5,080 drums
  Carcinogenics - 9 drums
  Aromatic Tar -1,159 drums
  Cadmium Waste - 11 drums

  Pesticides - 425 drums
  Metal Finishing/Cleaning - 10,947 drums
  Solvents - 253 drums
  Barium with Mercury - 2,896 drums

HRS Section Score: 8 (Ref. 1,3,4,5)

* * * * * * * * * *

5. TARGETS

5a. Ground Water Use

- Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

  Ground water is used for drinking water and irrigation within three miles of the site. Some of the wells used for drinking water are beyond the perimeter of the public water supply system.

HRS Section Score: 3 (Ref. 6,7,8, 9,10,11,12,13)

5b. Distance to Nearest Well

- Location of nearest well drawing from the "aquifer of concern" or occupied building not served by a public water supply:

  SW 1/4, NW 1/4, Section 22, Township 9N, Range 30E.

- Distance from site to above well or building:

  The well is on site, approximately 800 feet north of monitoring wells EE2, EE3, and JUB 2, which are contaminated.

HRS Section Score: 4 (Ref. 11,13)

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5c. Population Served by Ground Water within a 3-Mile Radius

- Identify water supply well(s) drawing from the "aquifer of concern" within a 3-mile radius and populations served by each:

See sheet 4A

Total 1048

- Compute land area irrigated by supply well(s) drawing from the "aquifer of concern" and convert to population (1.5 people per acre):

See Sheets 4B, C, D

- Total population served by ground water:

1048 + 14820 = 15868

HRS Section Score: 40 (Ref. 7,8,9, 10,11,12,13,14)

[illegible]
7-17-87

Pasco Sanitary Landfill

6/5/87

GW used for drinking water within 3 miles of above site

Name	Pop. served	Reference #
1. Washington Idaho Laborers	3.8	7
2. Paul Sauage	3.8	7
3. Al Yenney	3.8	7
4. Tom Kidwell	3.8	7
5. Van Wormer	3.8	7
6. Lakeview Mobile Home Park	800	8
7. Rada Sons	16	8
9. AZTLAN Construction Inc	20	8
10. BPA - Franklin	16	8
11. Bonnie Brae Trailer Court	65	8
12. De Vries Water system	12	8
13. Palmarez	3.8	10
14. Marquez	3.8	10
15. Johnson & Boxbaum	3.8	10
16. Bumgarner	3.8	10
17. Dall	3.8	10
18. Cunningham	3.8	10
19. Rasmussen	3.8	10
20. Western Farm Services	24	8
21. Frontier Machinery	50	8
Total	1048.6	

[signature]
7-17-87

Pasco Sanitary Landfill

6/10/87

GW used for irrigation within 3 miles of above site:

Name	Acres	Reference #
Burlington Northern	520	9
"	130	
Conn Mut Life Ins	145	
Burlington Northern	520	
"	520	
"	300	
Middleton	142	
"	20	
Columbia East	268	
Burlington Northern	137	
"	160	
"	400	
"	315	
"	107	
"	300	
"	200	
Sullivan	20	
Burlington Northern	107	
"	300	
"	40	
Alderson	150	
Columbia East	500	
Burlington Northern	315	
"	40	
"	75	
Hill	15	
USCE	10	

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Standard Oil	.75	9
Minnahan	40	
Conn Mut Life Ins	137	
Tippett	135	
"	160	
Conn Mut Life Ins.	160	
Worsham	157	
Cox	157	
"	5	
Conn Mut Life Ins	130	
"	155	
Worsham	157	
Burlington Northern	480	
WA ST DNR	520	
Columbia East	130	
Burlington Northern	130	
Seattle Hardware	4	
Close	1	
Modd	2	
Fanning	7	
Frontier Machinery	12.5	
Pasco, City of	15	
Columbia	268	
Dietrich	38	
Tomlinson	345	
Palomarez	26	
Burden	20	
Eastern Wa ID	5	
Spooner	1	
Reisinger	2	

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Reisinger	6.5		9
Mann	10		
Johnson	5.5		
Lourdes	.5		
Pasco, City of	10		
Pasco, Port of	3		
Columbia East	495		
Story	73		
Hill	20		
USCE	100		
Total	9879.75	acres	
	x 1.5	people per acre	
	14820	people	

7-17-87

SURFACE WATER ROUTE

1. OBSERVED RELEASE

1a. Contaminants Detected in the Surface Water at the Facility or Down Gradient from It (5 maximum)

No observed release.

- Rationale for attributing contaminants to the facility:

HRS Section Score: (Ref.)

* * * * * * * * * * *

2. ROUTE CHARACTERISTICS

2a. Facility Slope and Intervening Terrain

- Average slope of facility/site in percent:

  The site is relatively flat (less than 1%).

- Name description of nearest down-slope surface water:

  The only down slope water within two miles is a man-made dairy pond.

- Average slope of terrain between facility and above-cited surface water body in percent:

  The average slope is less than 1%.

- Is the facility located either totally or partially in surface water?
  Yes / No (circle one)

- Is the facility completely surrounded by areas of higher elevation?
  Yes / No (circle one)

HRS Section Score: 0 (Ref. 1,12,13)

2b. 1-Year 24-Hour Rainfall in Inches

Less than 0.75

HRS Section Score: 0 (Ref. 2)

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2c. Distance to Nearest Down-slope Surface Water

The man-made dairy pond is approximately 1,500 feet southwest of the site. No natural water is located within two miles of the site.

HRS Section Score: 0 (Ref. 1,12,13, 15,16)

2d. Physical State of Substance at Time of Disposal

No known waste is available to surface water migration.

HRS Section Score: 0 (Ref. 1)

* * * * * * * * * *

3. CONTAINMENT

3a. Containment

- Method(s) of waste or leachate containment:

All known hazardous wastes have been covered.

- Method with highest score:

All known hazardous wastes are covered with three feet of soil, four mil polyethylene sheeting, and capped with an additional two feet of soil.

HRS Section Score: 0 (Ref. 1)

* * * * * * * *

4. WASTE CHARACTERISTICS

4a. Toxicity and Persistence

- Compound(s) evaluated:

Compound	Toxicity	Persistence	Total

2-17-87

- Compound(s) with highest score:

No known compounds are available to migration.

HRS Section Score: 0 (Ref. 1)

4b. Hazardous Waste Quantity

- Total amount of hazardous substance at the facility/site, excluding those with a containment score of zero. (Give a reasonable estimate, even if the quantity is above maximum.):

No known waste is available to surface water migration.

- Basis of estimating and/or computing waste quantity (must be documented and not assumed):

HRS Section Score: 0 (Ref. 1)

* * * * * * * * * *

5. TARGETS

5a. Surface Water Uses

- Use(s) of surface water within 3-miles downstream of the hazardous substance:

No natural surface water is used within two miles of the site and no known hazardous wastes are available to migration.

- Is there tidal influence? Yes / No (circle one)

HRS Section Score: (Ref. 1)

5b. Distance to Sensitive Environment

- Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

- Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

- Distance to critical habitat of federal endangered species or national wildlife refuge, if 1 mile or less:

HRS Section Score: 0 (Ref. 1

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5c. Population Served by Surface Water

- Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static bodies) downstream of the hazardous substance and population served by each intake:

  No known wastes are available to surface water. No natural surface water is located within two miles of the site.

- Compute land area irrigated by above-cited intake(s) and convert to population (1.5 people per acre):

- Total population served: 0

- Name and description of nearest above-cited water bodies:

- Distance from probable point of entry to above-cited intakes (stream miles):

HRS Section Score: 0 (Ref. 1,12,13, 15,16)

* * * * * * * * * *

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7-17-87

AIR ROUTE

1. OBSERVED RELEASE

1a. Contaminants Detected in Ambient Air

None observed.

- Date and location of detection of contaminants:

- Method used to detect contaminants:

- Rationale for attributing contaminants to the site:

HRS Section Score: 0 (Ref. 1,15)

* * * * * * * * * *

2. WASTE CHARACTERISTICS

2a. Reactivity and Incompatibility

- Most reactive compound:

- Most incompatible pair of compounds:

HRS Section Score: (Ref.)

2b. Toxicity

- Most toxic compound:

Compound	Toxicity

HRS Section Score: (Ref.)

2c. Hazardous Waste Quantity

- Total quantity of hazardous waste at the facility/site:

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- Basis of estimating and/or computing waste quantity:

HRS Section Score: (Ref.)

* * * * * * * * * *

3. TARGETS

3a. Population Within 4-mile Radius

- Enter data under respective radius and indicate how determined:

0 to 4 miles	0 to 1 mile	0 to 1/2 mile	0 to 1/4 mile

HRS Section Score: (Ref.)

3b. Distance to Sensitive Environment

- Distance to 5-acre (minimum) coastal wetlands, if 2 miles or less:

- Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

- Distance to critical habitat of an endangered species, if 1 mile or less:

HRS Section Score: (Ref.)

3c. Land Use

- Distance to commercial/industrial area, if 1 mile or less:

- Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

- Distance to residential area, if 2 miles or less:

- Distance to agricultural land in production within past 5 years, if 1 mile or less:

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7-17-87

- Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

- Is a historic or landmark site (National Register of Historic Places and National Natural Landmarks) within the view of the site:

HRS Section Score: (Ref.)

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FIRE AND EXPLOSION

FIRE MARSHAL'S STATEMENT:

This site poses no fire/explosive potential (Ref. 16).

1. CONTAINMENT

- Hazardous substance present:

- Type of containment, if applicable:

<u>HRS Section Score</u>: (Ref.)

* * * * * * * * * *

2. WASTE CHARACTERISTICS

2a. <u>Direct Evidence</u>

- Type of Instrument and Measurement:

<u>HRS Section Score</u>: (Ref.)

2b. <u>Ignitability</u>

- Compound considered:

<u>HRS Section Score</u>: (Ref.)

2c. <u>Reactivity</u>

- Most reactive compound:

<u>HRS Section Score</u>: (Ref.)

2d. <u>Incompatibility</u>

- Most incompatible pair of compounds:

<u>HRS Section Score</u>: (Ref.)

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2e. Hazardous Waste Quantity

- Total quantity of hazardous substance(s) at the facility/site:

- Basis for estimating and/or computing waste quantity:

HRS Section Score: (Ref.)

* * * * * * * * * *

3. TARGETS

3a. Distance to Nearest Population

HRS Section Score: (Ref.)

3b. Distance to Nearest Building

HRS Section Score: (Ref.)

3c. Distance to Nearest Sensitive Environment

- Distance to wetlands:

- Distance to critical habitat:

HRS Section Score: (Ref.)

3d. Land Use

- Distance to commercial/industrial area, if 1 mile or less:

- Distance to national or state park, forest, or wildlife refuge, if 2 miles or less:

- Distance to residential area, if 2 miles or less:

- Distance to agricultural land in production within past 5 years, if 1 mile or less:

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- Distance to prime agricultural land in production within past 5 years, if 2-miles or less:

- Is a historic or landmark site within view of the site?
  Yes / No (circle one)

HRS Section Score: (Ref.)

3e. Population Within 2-Mile Radius

HRS Section Score: (Ref.)

3f. Buildings Within 2-Mile Radius

HRS Section Score: (Ref.)

7-17-87

DIRECT CONTACT

1. OBSERVED INCIDENT

1a. Date, Location, and Pertinent Details of Incident

No observed incident reported.

HRS Section Score: 0 (Ref. 1,15)

* * * * * * * * * *

2. ACCESSIBILITY

2a. Describe Type of Barrier(s)

Site is not fenced. However, the operator's residence is on site.

HRS Section Score: 1 (Ref. 17)

* * * * * * * * * *

3. CONTAINMENT

3a. Type of Containment, if Applicable

The known hazardous waste is covered with three feet of soil, four mil polyethylene sheeting, and capped with an additional two feet of soil.

HRS Section Score: 0 (Ref. 1)

* * * * * * * * * *

4. WASTE CHARACTERISTICS

4a. Toxicity

- Compounds evaluated:

Compound	Toxicity
No compounds available for contact.	

- Compound with highest score:

7-17-87

HRS Section Score: 0 (Ref. 1)

* * * * * * * * * *

5. TARGETS

5a. Population Within 1-mile Radius of Site

No compounds available for contact.

HRS Section Score: (Ref. 1)

5b. Distance to Critical Habitat (of Endangered Species)

HRS Section Score: (Ref.)

* * * * * * * * * *

7-17-87

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MAY 17 1988

MEMORANDUM

SUBJECT: Municipal Landfill Support Documentation

FROM: Scott Parrish, Chief
Hazard Ranking and Listing Branch

TO: The Record

In an effort to ensure that the worst sites are being addressed first, the Agency has elected to require some special documentation for sites considered to be municipal landfills. This position was detailed in an August 21, 1987 memorandum from Henry Longest II to the Regional Offices. Consequently, for each municipal landfill being proposed in Update #7 to the National Priorities List, a cover letter is being included with the Hazard Ranking System package. This cover letter summarizes the health and environmental concerns at the landfill. Specifically, the cover letter examines the site history to indicate the types of materials disposed or believed disposed at the site (if known), presents any monitoring data indicating a release from the site, and provides a general assessment of the environmental and public health risks at the site.

Attached is the municipal landfill cover letter for this site.

Attachment

PASCO SANITARY LANDFILL

The Pasco Sanitary Landfill covers 250 acres and is located 1.5 miles northeast of Pasco, Washington in an area dominated by irrigated agricultural fields and range land. The landfill is privately owned and operated and was converted from a waste burning dump to sanitary landfill in 1971. In 1972, Resource Recovery Corporation leased a portion of the landfill and operated a regional hazardous waste disposal site under a Washington Department of Ecology (Ecology) permit until December 1974 when the lease terminated.

Over 47,000 drums of various hazardous substances were deposited in the leased portions of the landfill and covered by three feet of soil. Wastes known to be deposited include chlor-alkali sludge, paints, resins, herbicide manufacturing wastes, caustics, and empty pesticide containers.

In a 1985 site inspection by EPA, tetrachloroethylene (32 ppb) and trichloroethylene (480 ppb) were detected in monitoring wells on site. When sampled in 1986 by EPA, low-level organics contamination was detected in three domestic wells downgradient of the landfill. Further investigation by EPA in 1987 revealed that levels of tetrachloroethylene had increased to 72 ppb in an on-site monitoring well and trichloroethylene had increased to 1900 ppb, also in an on-site monitoring well. Low-level organics contamination was detected in only one domestic well downgradient at levels much lower than drinking water standards. Highly variable levels of inorganics had been detected in the 1985, 1986, and 1987 on-site groundwater samples. The variability has been attributed to siltation, different sampling techniques, and a highly channelized groundwater flow beneath the landfill.

The Pasco Sanitary Landfill poses potential risks to the environment and public health. There is a drinking water well on site which supplies water to two nearby residences. Low level organics contamination has been detected in nearby drinking water wells, although it is not clear at this time whether this contamination can be directly attributed to the landfill. Groundwater is used by over 1,000 people within three miles for drinking and is also used to irrigate almost 10,000 acres of land.

The landfill is currently operating under an Ecology permit and is under an Ecology administrative order to conduct a quarterly groundwater monitoring program using on-site monitoring wells. In addition, the landfill had been proposed for expansion.

Ref #1

ecology and environment, inc.

108 SOUTH WASHINGTON, SUITE 302, SEATTLE, WASHINGTON 98104, TEL. 206-624-9537

International Specialists in the Environmental Sciences

FINAL REPORT FOR
RESOURCE RECOVERY CORPORATION
PASCO, WASHINGTON

TDD R10-8410-14

Report Prepared By: Ecology and Environment, Inc.
Project Leader: Andrew Hafferty
Report Date: June 1986

Submitted To: J.E. Osborn, Regional Project Officer
Field Operations and Technical Support Branch
U.S. Environmental Protection Agency
Region X

recycled paper

ABSTRACT

Ecology and Environment, Inc. (E&E), Seattle, Washington conducted a Field Investigation at the Resource Recovery Corporation Waste Disposal Site in Pasco, Washington during July and August 1985. The investigation was designed to determine if industrial wastes buried at the site between 1972 and 1974 had migrated from several known buried disposal zones.

Resource Recovery Corporation (RRC) received and disposed of several million gallons of liquid industrial wastes consisting primarily of chlor-alkali sludge, acidic metal cleaning and metal finishing wastes, paints, resins, resin by-products, cutting oil, and other industrial materials; and 50,000 drums of material, including herbicide manufacturing wastes, paint and oil sludges, caustics, and empty pesticide containers.

Two monitoring wells were installed by E&E during this investigation downgradient of the ground water flow beneath each of the four disposal zones. One upgradient well was completed to establish background levels of contaminants.

Stainless steel monitoring wells were constructed and developed, and sampled together with several nearby existing monitoring wells. Ground water samples were collected for standard Hazardous Substance List (HSL) compounds and herbicides, and analyzed using the Environmental Protection Agency's Contract Laboratory Program (CLP) and EPA Region X Laboratory.

Soil samples were analyzed for the same parameters as ground water except for HSL volatile organic compounds. Soils in the area consisted primarily of sands and gravels from the surface to the maximum vertical extent of drilling, approximatley 100 feet below grade. Measured ground water elevations verified that the ground water gradient is to the southwest. Ground water was encountered between 40 and 77 feet below the land surface.

No evidence of herbicide or herbicide waste migration was found and only trace amounts of other contaminants were detected outside burial zones. There are no potable water wells within one mile downgradient of the site and it appears unlikely that nearby irrigation wells could be adversely affected.

Annual or biannual sampling and laboratory analyses of ground water collected from on-site monitoring wells is recommended as a precaution designed to detect any changes in water quality.

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DISCLAIMER

1.0 INTRODUCTION

A Field Investigation (FI) was conducted at the Resource Recovery Corporation Waste Disposal Site in Pasco, Washington during July and August 1985. The FI was conducted by the Ecology and Environment, Inc. (E&E) Seattle Field Investigation Team (FIT) in accordance with the United States Environmental Protection Agency (EPA) Technical Directive Document RIO-8410-14.

Resource Recovery Corporation received and disposed of 50,000 drums and several million gallons of liquid industrial wastes in five burial zones at a site in Pasco, Washington between 1972 and 1974. Liquids were evaporated to dryness from both lined and unlined ponds; the remaining sludges were buried beneath layers of soil, polyethylene sheeting, and capped with an additional soil layer. Drums were stacked and buried with a similar liner system. Ecology and Environment, Inc.'s Seattle FIT installed nine monitoring wells and submitted both soil and ground water samples to EPA Contract Laboratories for analyses in an effort to determine if contaminants had migrated out of the burial zones.

Summarized in this report are investigation objectives and tasks, site history, environmental characteristics, sampling techniques and methodology, results of the investigation, analytical data, and conclusions and recommendations relevant to selection of future monitoring and/or cleanup activities.

The primary source of information for this report is data collected during the FI. Other data, primarily those generated during previous E&E site inspections of the facility, are used to complement and supplement the FI data base where appropriate.

2.0 INVESTIGATION OBJECTIVES AND TASKS

2.1 Objectives

The Field Investigation (FI) of Resource Recovery was designed to: 1) determine if wastes disposed of on-site by burial have migrated outside of the burial zones; 2) identify any contaminants found, and if possible, the source or sources; and 3) determine if further investigation of this site is necessary and recommend the form such future work should take based on data generated in this study. The overall investigative strategy is presented in Figure 2.1.

2.2 Tasks

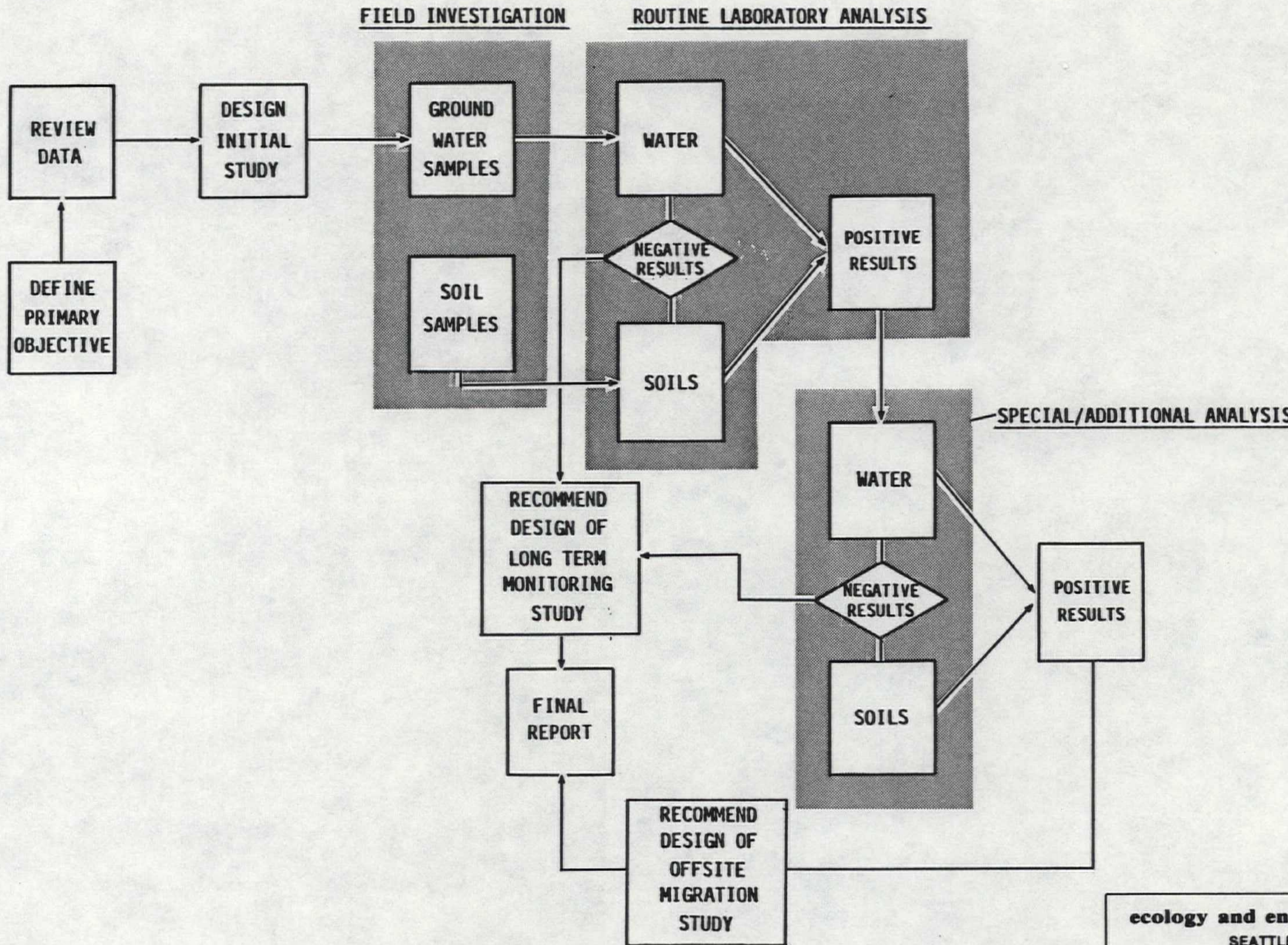
To accomplish the above objectives, the FI was divided into five primary tasks. Brief summaries of the objectives of each task and the activities conducted are given below:

Task 1 - Project Initiation and Management

The purposes of this task were to solicit input from appropriate EPA, Washington State Department of Ecology (DOE), Franklin County personnel, and E&E project team members to define and initiate preparation of key project plans. Activities included project kickoff meetings, site reconnaissance, and preparation of the project work plan, quality assurance (QA) plan, health and safety plan, and sampling plan.

Task 2 - Initial Site Definition

The objective of this task was to obtain information and provide an initial description of the physical conditions at the Resource Recovery disposal site to develop of the detailed field investigation described in Task 3. Specific activities included compilation and review of existing chemical data for the site, preparation of a site map, and preliminary characterization of the site hydrologic features. Information for this



ecology and environment, inc.
SEATTLE, WA
JOB #: R10-8410-14
Drawn by: L.Jowise
Date: 3-12-86

Figure 2.1 Investigation strategy, Resource Recovery Corporation, Pasco, Washington.

task was derived primarily from previous EPA activities at the site and reports prepared for the Department of Ecology by JUB Engineers, Inc. of Kennewick, Washington on the Pasco Sanitary Landfill (PSL), which contains within its boundaries the Resource Recovery disposal areas.

Task 3 - Detailed Site Investigations

Objectives of this task were to provide a description of the nature and extent of chemical contamination outside burial zones at the site and to create a data base sufficient for evaluation of potential future monitoring and/or cleanup activities. To accomplish these objectives, three phases of field activities were conducted: 1) soil and ground water characterization of each disposal zone and evaluation of the extent and magnitude of contamination immediately adjacent to each zone; 2) hydrogeologic characterization of ground water beneath the site; and 3) sampling monitoring wells constructed for the Pasco Sanitary Landfill by JUB Engineers, Inc.

Task 4 - Site Evaluation

Compilation, summarization, and interpretation of data collected at the site during the FI, and previous EPA (E&E) and JUB investigations were the objectives of this task. Activities included quality assurance (QA) review of the FI data base; compilation of chemical data and interpretation of the distribution and magnitude of contaminants in sediment and ground water; definition of ground water flow direction; and identification of specific sources and receptors of contamination. Emphasis was placed on investigating Resource Recovery burial zones and not landfill activities within the boundaries of the Pasco Sanitary Landfill.

Task 5 - Field Investigation Final Report

This report.

3.0 SITE HISTORY AND DESCRIPTION

This section summarizes pertinent background information and specific data related to the historical activities of Resource Recovery Corporation. Only those factors that may directly affect the potential for dispersal of buried wastes were considered.

3.1 Site Location

Resource Recovery Corporation's hazardous waste burial zones are within the boundaries of the Pasco Sanitary Landfill, located approximately 1.5 miles northeast of the City of Pasco, Washington. The landfill is in the southwest quarter of Section 15, and the northwest quarter of Section 22, Township 09 North, Range 30 East, Willamette Meridian, Franklin County, Washington (Figures 3.1 and 3.2). The nearest cross streets are Kahlotus Road and Washington State Route 12. The latitude is 46°15'07"N and the longitude is 119°03'13"W (1, 2).

3.2 Site History

Pasco Sanitary Landfill, originally known as the Basin Disposal Company dump site, was owned and operated by John Dietrich as a municipal waste open burning dump from 1956 to 1971. In 1971 all burning was halted and the site was converted into a sanitary landfill. In 1974, Pasco Sanitary Landfill began accepting large quantities of septic wastes for open pit disposal. In 1981, Larry Dietrich took over as owner and operator of Pasco Sanitary Landfill (3). The site is currently operated as an active landfill.

Resource Recovery Corporation (RRC) was formed by a partnership between Basin Disposal Company and Chemical Processors, Inc., of Seattle (Larry Dietrich, Waste Site Operator/Manager). RRC leased a portion of the Pasco Sanitary Landfill (PSL) in 1972 and began operations as a regional

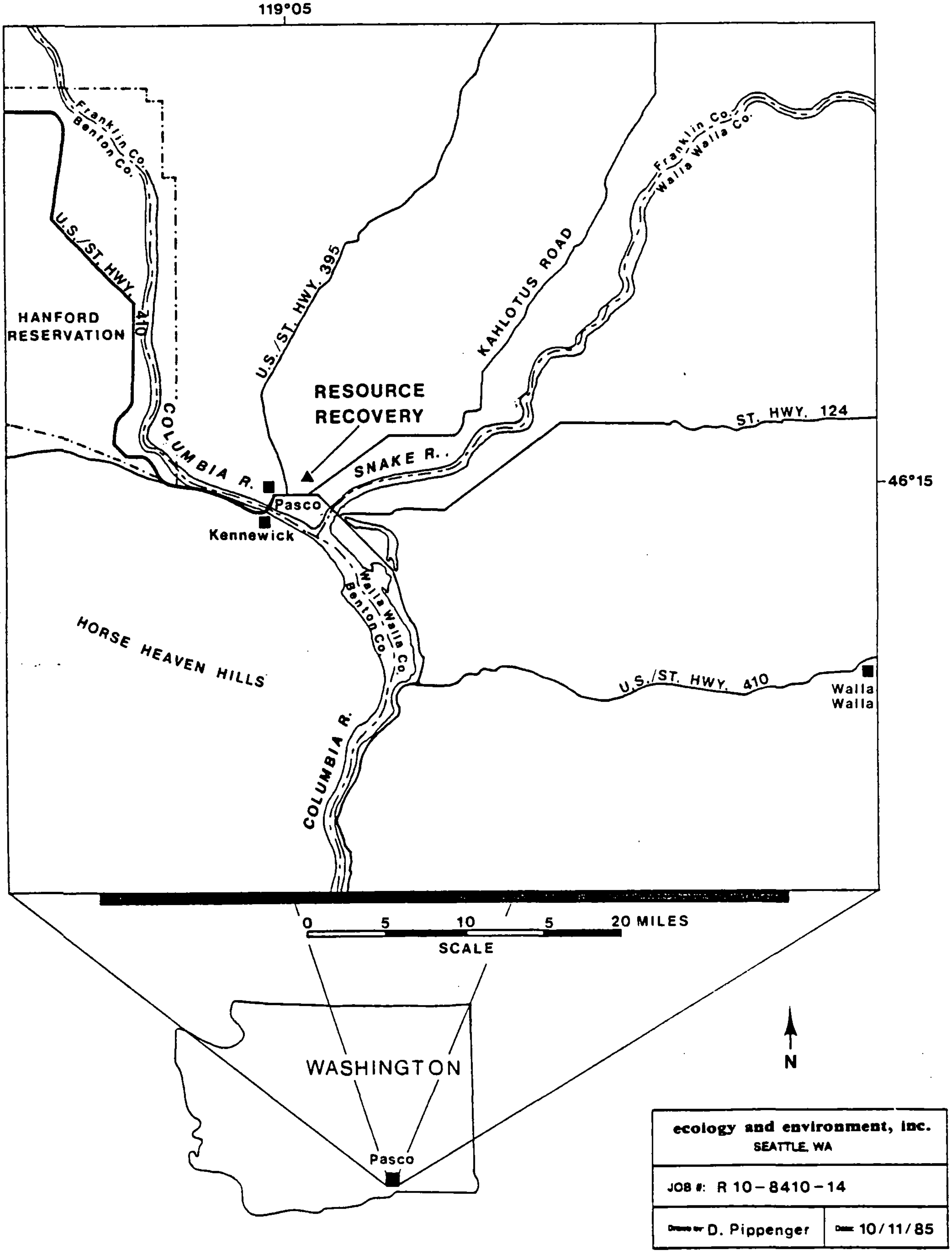


Figure 3.1 Location map, Resource Recovery Corporation, Pasco, Washington.

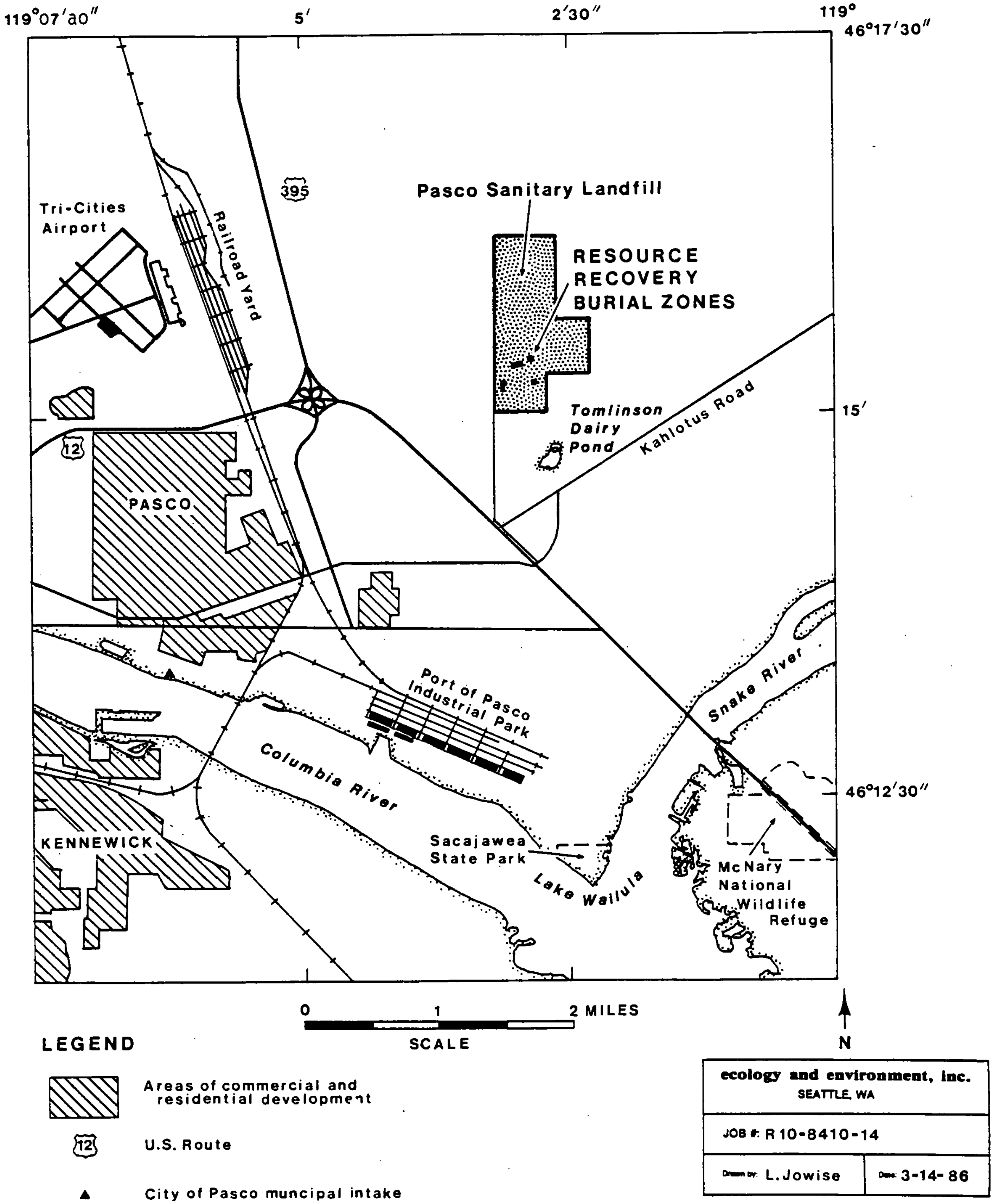


Figure 3.2 Vicinity map, Resource Recovery study area, Pasco, Washington.

hazardous waste disposal site under a Washington Department of Ecology Permit No. 5301 issued March 21, 1973 (4). The site accepted potentially hazardous wastes from various sources between early 1972 and December 1974.

3.3 Waste Management Practices

According to recent interviews and past records (5, 6, 7), RRC, at least to some degree, segregated wastes into five zones at the disposal site (Table 3.1 and Figure 3.3). A portion of the site, hereafter referred to as Zone A, had been used for disposal of paint wastes prior to the Resource Recovery takeover. Resource Recovery records stated that drums were stacked on end, usually three levels high after their operation began. The space between drums was backfilled with common debris, empty pesticide drums, and small, unidentified amounts of waste. The PSL pit is reported to contain drums of paint wastes, pesticide residues, wood treatment wastes, used etching solutions, metal castings wastes, and laboratory chemicals. No free liquids were discharged into this pit. Maximum burial depth of Zone A is reported to be less than 30 feet below the present surface. The west side of Zone A was utilized for open burning of municipal waste, which was intermittently compacted. The burned area extends approximately 75 feet from the western edge of the zone. A burial area reserved for large disposal items, such as cement walls from building demolition and empty fuel oil tanks, extends for 100 yards from the east side of Zone A.

Zone B is the burial site for over 5,000 herbicide waste drums from Rhodia (Rhone-Poulenc) Chemical Company, Portland, Oregon. The majority of drums contained 2,4-D Bleed, 2,4-DCP Tar, and MCPA waste. The composition of these materials is itemized in Table 3.2.

TABLE 3,1
UASTE QUANTITIES AND BURIAL LOCATION (3)

Location	Dimensions Lining	Waste Types	Estimated Quantity	Units
Zone A	250' x 150'	Acids	544	drums
		Aromatic Tars	160-248	drums
	bottom unlined	Carcinogenics (unspecified)	9	drums
	top lined	Caustics	8,774	drums
		Cadmium	11	drums
		Metal Finishing	244-304	drums
		Oil Sludge	433	drums
		Paint	10,258-24,200	drums
		Pesticides	425	drums
		Pesticide Containers (empty)	791-863	drums
Zone B	85' x 85'	2,4-D Manufacturing	2,011-5,080	drums
	bottom unlined top lined			
Zone C	110' x 110'	Acids	7,000	drums
		Acid Metal Cleaning	2,301,560	pounds
	bottom unlined	Lime Phenol	684,967	gallons
	top lined	Metal Cleaning	185,162	gallons
		Metal Finishing	17,000-35,724	gallons
		Metal Finishing	1,460,602-1,949,652	pounds
Zone D	105' x 105'	Aromatic Tar	499,270	pounds
		Cutting Oil	76,350-84,300	gallons
	bottom unlined	Fertilizer Manufacturing	228,288	pounds
	top lined	Oily Sludge	6,000-66,340	gallons
		Paint	72,475-497,418	pounds
		Paint	66,516-95,711	gallons
		Plywood Resin	1,393,380-2,215,440	pounds
		Solvents	12,648	gallons
Zone E	180' x 180'	Chlor-Alkali Sludge	10,500-11,582	Tons
	bottom and top lined			
Unknown		Acid Sludges	1,000	gallons
		Acid Wash Solution	312,350	pounds
		Benzoic Acid and Tar	176,000	pounds
		Chemistry Lab Reagents	1	drum
		Chrome Rinse Water	700,901	pounds
		OCP Tar	8,790	gallons
		Etching Solution	1,914	barrels
		Lime Sludge	80-160	drums
		MCPA Bleed	104,318-327,000	gallons
		MCPA Tar	2,965-3,037	drums
			939	drums
			2,813	barrels
			680	pails
		Metal Casing Wastes	3,300-5,760	drums
		Misc.Lab Chemicals	29	small containers
		NH_4+ and NaOH Chemical Solutions	17,238	gallons
		Oily Sludge	116,680	pounds
		Miscellaneous	435	drums
		Pesticide Containers	1,045	each
		Resin Manufacturing	392,553	gallons
		Solid Caustic Soda	44,550	pounds
		Wood Treatment/Preservative	238	drums plus
		Sludges	294,662	gallons

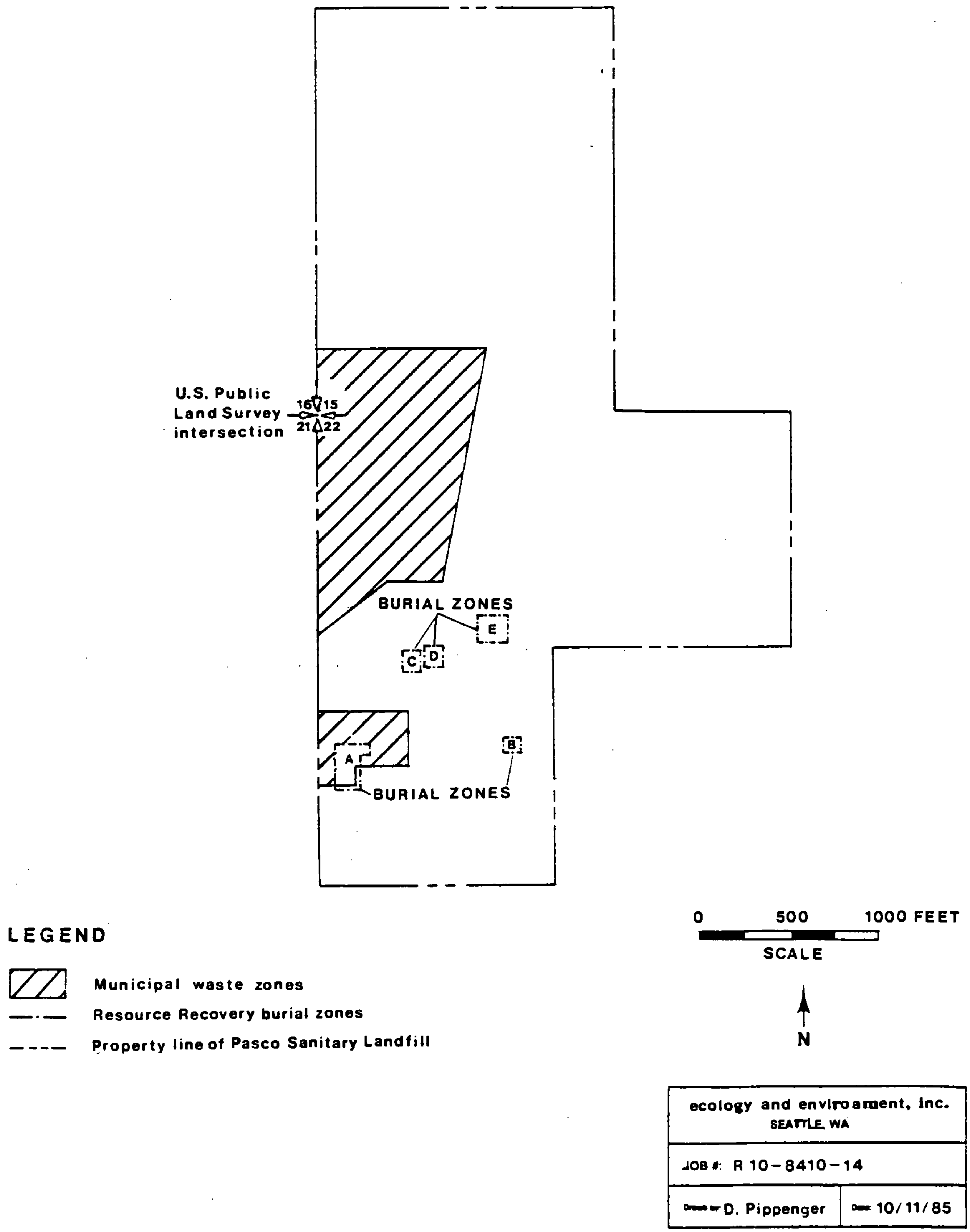


Figure 3.3 Site map of Resource Recovery burial zones, Pasco, Washington.

TABLE 3.2
COMPOSITIONS OF SOLID WASTES FROM
PRODUCTION OF RHODIA HERBICIDES (8)

Waste Name	Composition	%
2,4-D Bleed	2,4-D (as sodium salt), chlorophenols, tars	40 20 40
2,4-DCP Tar	2,4,6-trichlorophenols dichlorophenols para-chlorophenol tars	20-30 25-35 0- 5 35-45
MCP Tar	MCPA acids (as sodium salts) chlorinated cresols and other organics caustic sodium chloride	30 40 15 5

Drums were reportedly stacked at least three tiers high in this zone. However, newspaper photographs show drums stacked four high. Zone B was created by digging into the south side of a small plateau. The earthen surface above this zone is on the same level as the land to the north. Ground level south of the zone is at the same level as the base of the stacked drums.

Records provide conflicting information regarding the area covered by adjoining Zones C and D. Certain records indicate three zones existed in this area. According to Mr. L. Dietrich, only two liquid waste ponds were used. Zone C was an unlined pond used for evaporation of water from lime sludge, ammonia water, metal cleaning acids, and chrome plating wastes. Zone D is listed as an unlined pond used to hold liquid paint, oil, solvent, plywood resin, aromatic tar, pesticide, and fertilizer wastes.

Zone E was a lined chlor-alkali evaporative sludge pond that received approximately 12,000 tons of mercury-contaminated magnesia and barium sulfate liquors. The aqueous component of these wastes was removed by evaporation. No other kinds of wastes or waste materials were added to this pond.

Unsubstantiated reports claim that unsealed and leaking drums were received for disposal by RRC from Rhodia. However, Mr. L. Dietrich has stated that Rhodia drums were all new and in excellent condition.

On closure of the site in 1974, all zones were covered with three feet of soil, four mil polyethylene sheeting, and capped with an additional two feet of soil (9).

4.0 ENVIRONMENTAL CHARACTERISTICS

4.1 Physical Setting

RRC's hazardous waste disposal site is located in a sparsely populated rural area. Approximately 35 people live within a one-mile radius of the site. Pasco Sanitary Landfill covers 250 acres. The surface areas of the five burial zones shown in Figure 3.3 are listed below (10):

Zone	Area
Zone A	36,510 sq. ft. (0.84 acres)
Zone B	6,962 sq. ft. (0.16 acres)
Zone C	11,758 sq. ft. (0.27 acres)
Zone D	10,674 sq. ft. (0.25 acres)
Zone E	32,050 sq. ft. (0.74 acres)

The landfill is surrounded by irrigated agricultural fields and range land. Eighteen wells pump water for irrigation within a one-mile radius.

4.2 Meterology

The Cascade Mountains west of the Kennewick-Pasco-Richland (Tri-Cities) area obstruct the easterly flow of ocean-moistened air. The Rocky Mountains and ranges in southern British Columbia effectively block severe winter storms which move southward across Canada. The result is that the Tri-Cities area has a very dry climate with mild winters and hot summers (11).

The mean annual precipitation is 6.73 inches with an annual range of 4.05 to 12.90 inches. Maximum precipitation in a 24-hour period was 1.91 inches, recorded in 1957.

The Tri-Cities area has a mean annual snowfall of 14.0 inches, which falls mostly in January. Snowfall in measurable amounts can be expected from November to March.

Evaporation potential is approximately 60 inches per year with 80% of all evaporation occurring from May to October. Temperature extremes range from winter lows of -27°F to summer highs of 115°F. Normal westerly air patterns produce mean winter low temperatures of 22°F and mean summer high temperatures of 92°F. There are 56 days per year with a maximum temperature greater than 90°F and 117 days per year with a minimum temperature less than 32°F.

Subsurface soil temperatures have been measured at the landfill (7) and are shown in Figure 4.1. Mean winter relative humidity ranges from 58-80% as compared to the summer mean relative humidity of 31-59%.

Winds are predominately from the west-northwest in summer months with a mean windspeed range of 7.5-9.0 mph, and from the northwest in the winter months with a mean windspeed range of 6.0-7.0 mph. Gusts from the southwest and south-southwest of over 70 mph have been recorded, with little variance between summer and winter maximum wind speeds.

4.3 Regional Geology

Well logs and past geological studies have provided information on the regional shallow geology (7, 12, 13, 14). Soils and sediments beneath the Tri-Cities area vary in composition and origin to include: Eolian (wind transported) silts, and lacustrine deposits of silts and clays. These deposits form multiple layers having variable degrees of compaction, cementation, and constituent sizes. Depths to which these deposits extend is unknown.

Underlying these sediments is the Yakima Basalt Formation. It consists of numerous lava flows ranging from a few feet to over 200 feet in

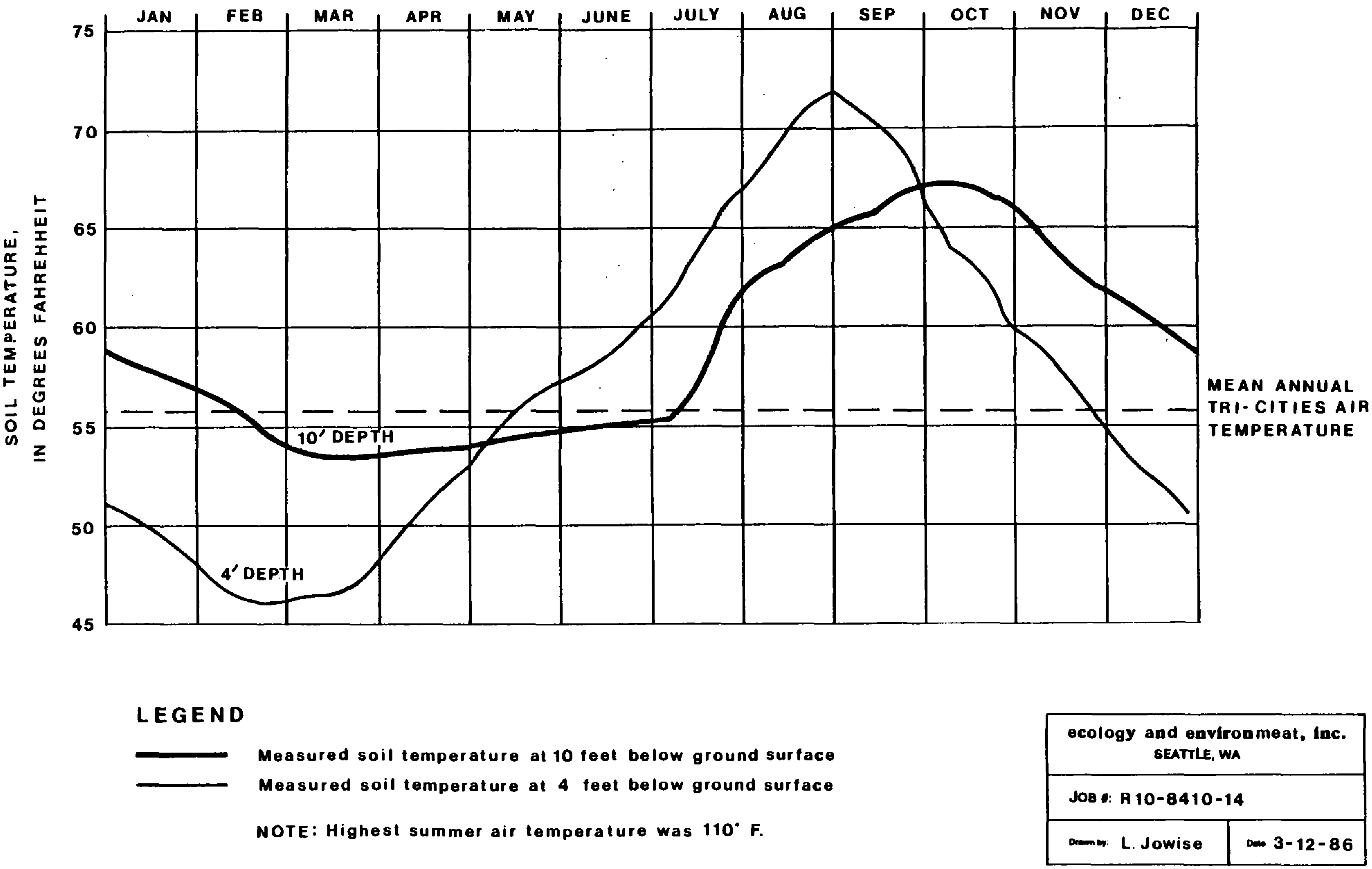


Figure 4.1 One-year soil temperature test (1971-1972), Resource Recovery Corporation, Pasco, Washington, adapted from DOE files (7).

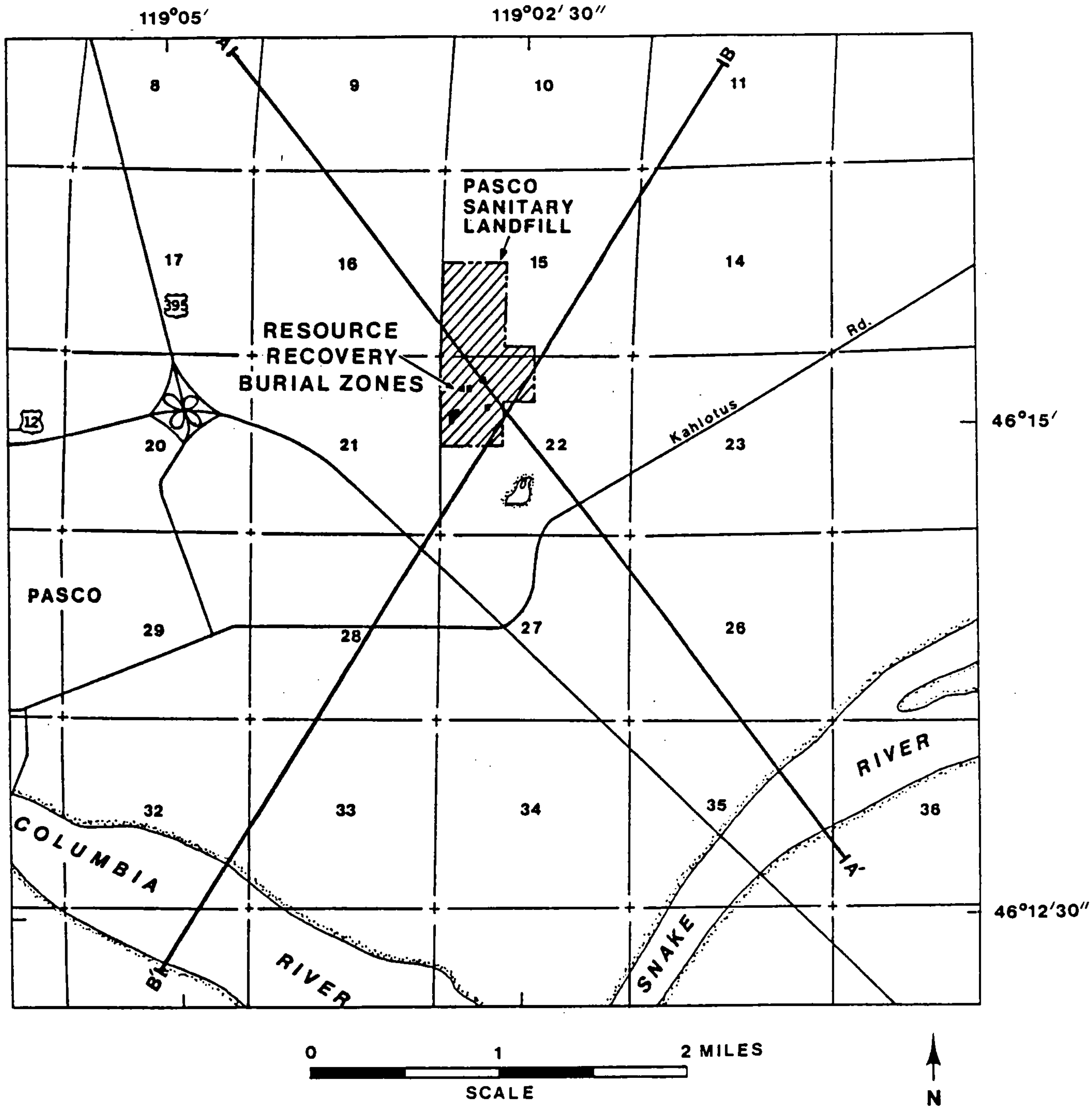
thickness. It is not certain what formations underly the Yakima Basalt in this area. Table 4.1 presents a generalized summary of the regional geologic units.

TABLE 4.1
DESCRIPTION OF GEOLOGIC UNITS

Geologic Unit Sub-Unit	Depth (feet)	Description	Permeability (cm/sec)
Eolian Sand & Silt	Surface	Light brown. Very fine sands & silts.	10^{-3}-10^{-5}
Touchet Formation	0- 40	Light to medium brown. Very fine to medium grained sands. Occasionally slightly to very silty.	10^{-3}-10^{-5}
Pasco Gravels	40- 60	Dark grey. Locally fine to coarse grained sands with occasional gravel	Greater than 10^{-3}
Ringold Formation Ringold Sands	60-100	Dark grey. Medium to coarse grain with gravel. Gravel increasing and getting coarser with depth.	Greater than 10^{-3}
Ringold Gravels	100-110	Tan gravel with sand.	Greater than 10^{-3}
Ringold Clays	110-140	Blue Clay.	Greater than 10^{-3}
Yakima Basalt	140+	Basalt	10^{-2}-10^{-5}

Figure 4.2 shows the geologic cross-section locations and Figure 4.3 the corresponding cross-sections from the RRC disposal area (7).

The surficial soils (approximately 0-5 feet in depth) of the PSL fall into three major categories: Sagehill very fine sandy loam, Kennewick silt loam, and Quincy loamy fine sand.



LEGEND

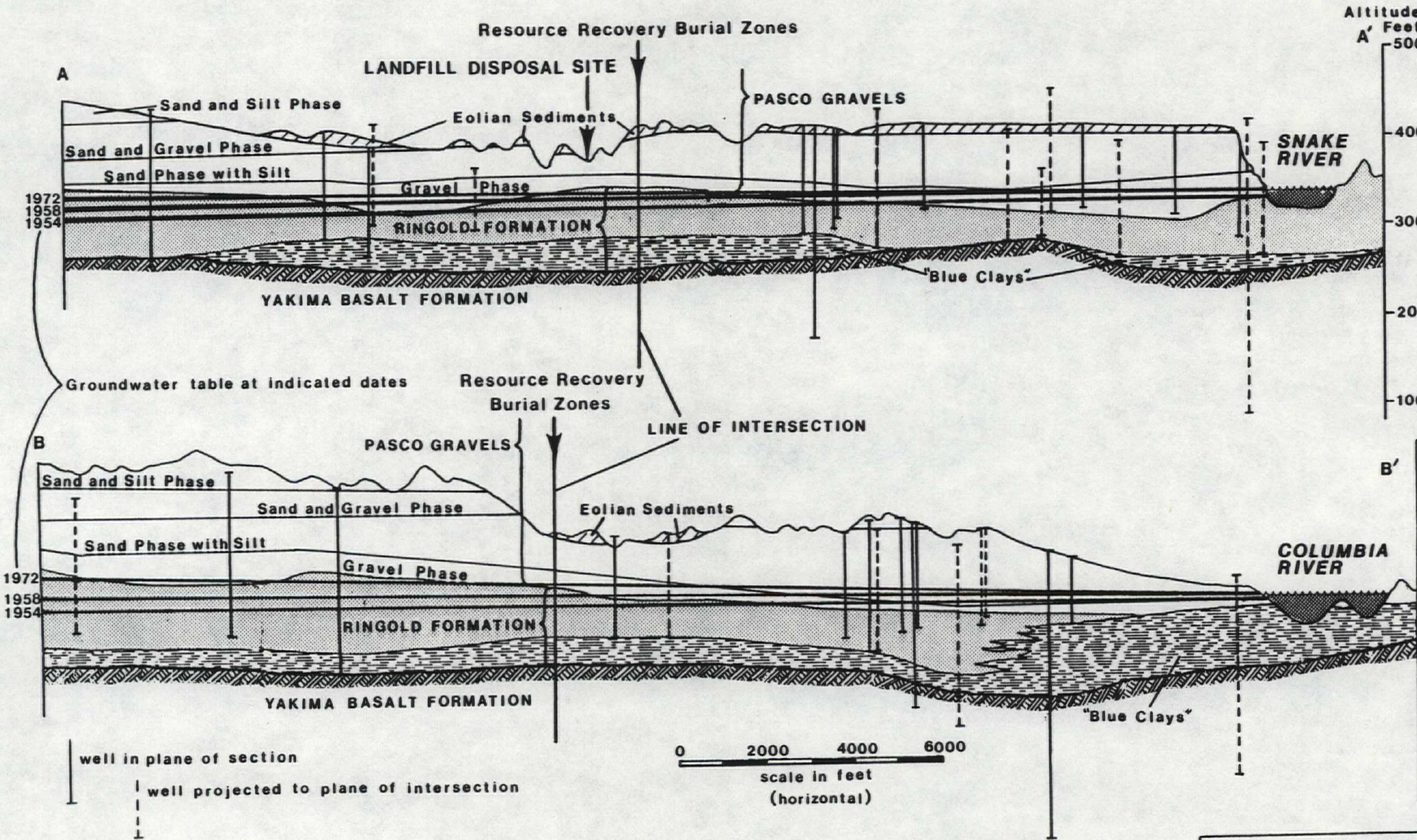
A — A′ Location and name of geologic cross-section

12 U.S. Route

15 U.S. Public Land Survey section number

ecology and environment, inc. SEATTLE, WA	
JOB #: R 10-8410-14	
Drawn by D. Pippenger	Date 10/11/85

Figure 4.2 Locations of geologic cross-sections A-A' and B-B', Resource Recovery Corporation vicinity, Pasco, Washington, from DOE files on Pasco Sanitary Landfill (7).



ecology and environment, inc.
SEATTLE, WA

JOB #: R10-8410-14

Drawn by: D. Pippenger | Date: 10/21/85

Figure 4.3 Geologic cross-sections A-A' and B-B' in the vicinity of Resource Recovery study area (adapted from DOE files on Pasco Sanitary Landfill). (7)

Sagehill and Kennewick soils are known to have slow to moderate permeabilities and high water capacity. The potential for water and wind erosion of this soil is moderate.

Quincy soil has a high water permeability and low water capacity. This soil type has only a slight risk of water erosion, but potential for wind erosion is severe.

No data on the organic carbon concentration of these surface and subsurface soils at the site is available; in general these types of soils have low organic carbon content.

4.4 Hydrogeology

Ground water flow was estimated in a 1981 study by JUB Engineers, Inc., 2810 W. Clearwater Ave., Kennewick, WA (15), utilizing nine irrigation wells ranging from 1,000 to 5,600 feet from the center of the landfill (Figure 4.4). Wells were sampled April 24 and 25, 1981. Ground water flows were to the southwest with a gradient of 3.7 feet per 1,000 feet.

Subsequent testing of wells installed by JUB Engineers, Inc. specifically for monitoring the PSL site confirm that this flow pattern was unchanged through a period of quarterly and then annual sampling episodes as illustrated in Figure 4.5. Well casings were constructed of two-inch PVC pipe with screw joints below the water table and glued joints above. Bentonite seals were placed just above the water table, at twenty feet below grade, and at the surface. Two screens were set in each well. JUB well construction details are presented in a JUB summary report (14).

Depth to ground water below land surface of the wells constructed by JUB is shown in Table 4.2.

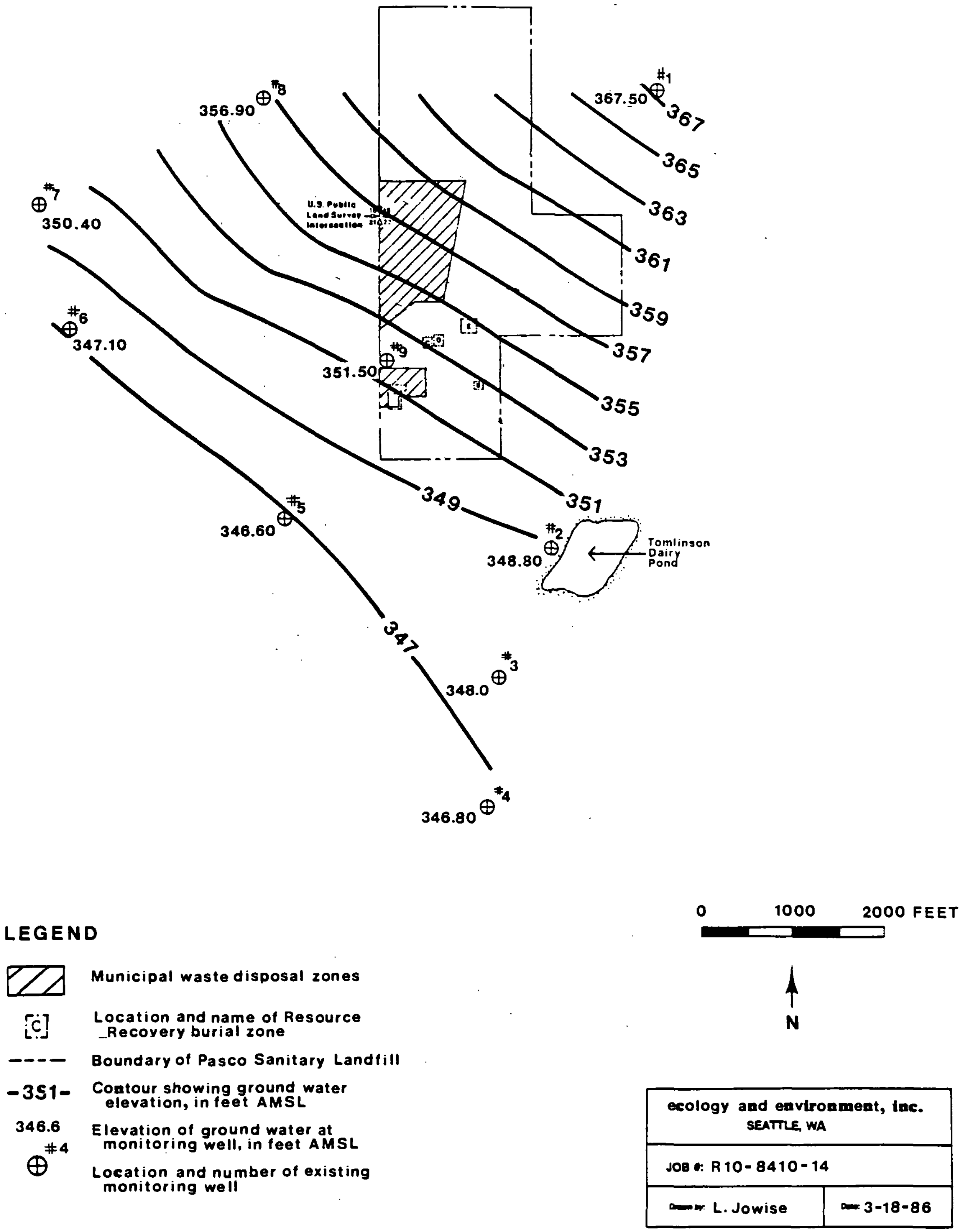


Figure 4.4 Contour map showing elevation of ground water, in feet AMSL, at Resource Recovery study area, on April 24-25, 1981, adapted from JUB report (15).

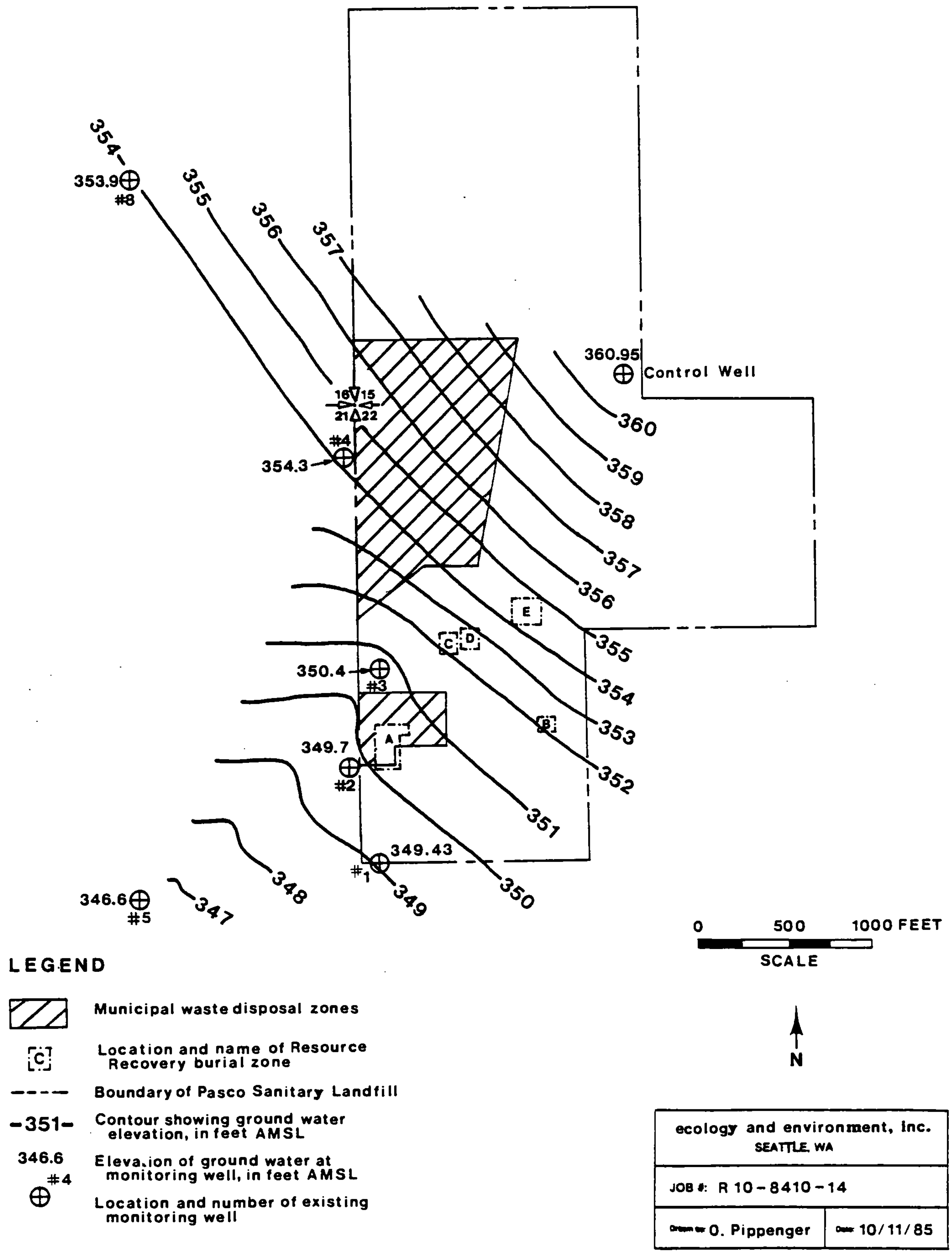


Figure 4.5 Contour map showing elevation (in feet AMSL) of ground water for December 29-30, 1982, adapted from JUB report (14).

TABLE 4.2
GROUND WATER LEVELS
DECEMBER 1982

Well Number	Depth Below Surface (feet)	Surface Elevation (AMSL)*	Ground Water Elevation (AMSL)
JUB 1	64.5	413.9	349.43
JUB 2	56.5	406.2	349.70
JUB 3	68.7	419.1	350.4
JUB 4	38.5	392.75	354.30
JUB Control	49	410.1	360.95

*AMSL - Above Mean Sea Level

A ground water mound may exist 1,500 feet to the southeast of the site to form the Tomlinson Dairy Pond. Existing wells do not provide sufficient information to estimate the effect of this ground water mound on the direction of flow south of the site.

There are fifteen water and power resource service monitoring wells withing a four mile radius of the site, however, none are downgradient of the site.

Currently, eighteen operational irrigation circles exist within a one mile radius of the PSL which rely on ground water for water supply. Irrigation has had and will continue to have a significant impact on the hydrogeology in this area. Between 1950 and 1974-5 the water table in this area rose approximately ten feet but has dropped about five feet since 1975. Projected irrigation demands have been incorporated into models, the results of which predict a continuing drop in ground water elevation through the year 2000 (15).

4.5 Surface Water

There is no surface water on or adjacent to the Pasco Sanitary Landfill (PSL). The topography of the site could lead to some localized drainage patterns, but the high permeability and climatic conditions of the area sustain vertical drainage patterns.

A dairy pond, approximately 2,000 feet south-southwest of the disposal area, and the Snake and Columbia Rivers, each approximately 15,000 feet southeast and southwest, respectively, of the disposal zones are the surface water bodies closest to the site.

4.6 Demography

RRC is situated in a sparsely populated section of Franklin County. According to 1980 U.S. Census data, approximatey 1,900 people reside within one mile of the site, 6,300 people within two miles and 16,000 within four miles.

Approximately twelve domestic and commercial wells, and eighteen irrigation wells exist within a one mile radius of the site. The total population served by the domestic wells is estimated to be 100 people. The closest major population center is the City of Pasco, approximately 1.5 miles southwest of the site. The primary water supply for Pasco residents is the Columbia River. The single most important natural resource in the site vicinity is agricultural land.

4.7 Aerial Photography

Aerial photographs of the RRC site were examined to identify historic areas of activity. Three black and white photographs were obtained from the EPA.

Date	Approximate Scale
August 3, 1970	1" = 250'
May 11, 1973	1" = 335'
April 12, 1978	1" = 185'

Photographic evidence indicates no activity in burial zone areas prior to 1970. Activity is indicated in all zones in the 1973 photo except for identification of only one liquid waste pond at Zone CD. The 1978 photo shows no active RRC burial zones, but indicates ground scarring and fill over each. Photographs are presented in Appendix A.

5.0 FIELD INVESTIGATION

5.1 Introduction

Tasks 1 and 2 were completed with the preparation of the Proposed Sampling Plan for the RRC FI in June 1985 (16). Task 3 consisted of on-site field work required to define the nature and extent of environmental contamination adjacent to known hazardous waste burial zones. Task 4 consisted of collection and review of data gathered during Task 3 and interpretation of these results, integration with historical data and discussion of the environmental fate of contaminants encountered. Task 5 is complete with publication of this report.

5.2 Detailed Site Investigation

Field work began on July 10, 1985 and proceeded through August 8, 1985 and was designed to establish a data base of sufficient quantity and quality to permit detailed evaluation of contaminant dispersal or leaching from burial zones. A series of subtasks were completed during E&E's activities at the site.

5.2.1 Surveying/Ground Water Elevation Verification

Existing monitoring wells were resurveyed using a Pentax theodolite and surveyor's chain to verify locations and elevations. Burial zones were also resurveyed, repeating a 1980 survey by A.D. Stanley and Associates of Pasco, Washington (commissioned by Resource Recovery Corporation) to detail burial zone locations. Ground water levels in the five existing monitoring wells and water supply well (WSW) were measured and plotted (Figure 5.1). This data was used to verify the ground water contours from other investigators. New E&E monitoring well locations, on the downgradient perimenters of each burial zone, were based on results of the E&E survey. An upgradient background well location was also established.

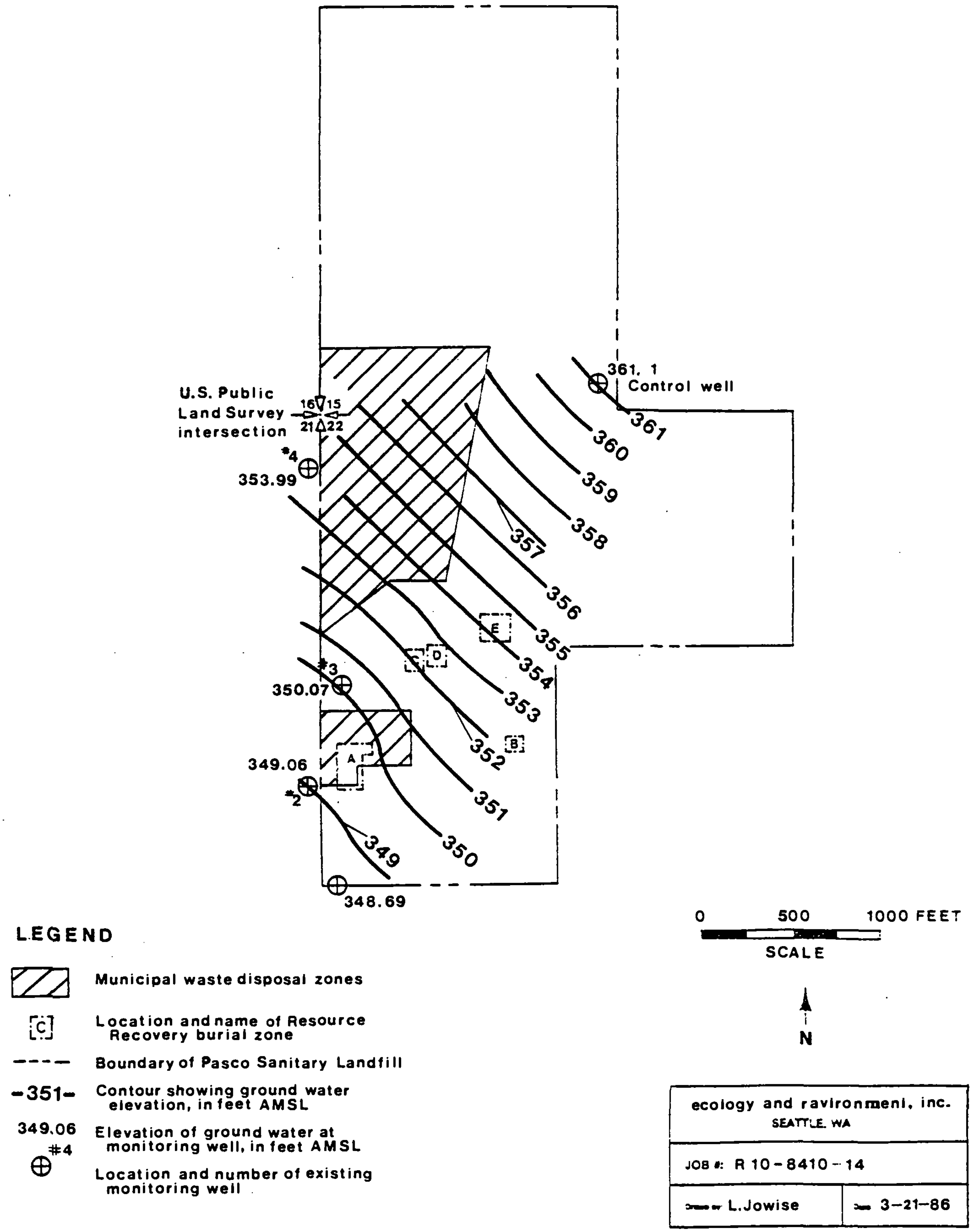


Figure 5.1 Contour map showing elevation of ground water, in feet AMSL, at Resource Recovery study area on July 9-10, 1985.

5.2.2 Well Drilling and Installation

The objectives of this sub-task were to: 1) provide a detailed chemical description of the subsurface geological and ground water environment downgradient of each burial zone; and 2) evaluate the magnitude of chemical contamination from each burial zone. Nine monitoring wells were installed to achieve these objectives (Figure 5.2). Monitoring wells 2 through 9 were positioned within 25 feet of surveyed burial zone perimeters. Monitoring well 1 (background) was located 420 feet southeast of the JUB control well and 1,250 northeast of the closest RRC burial zone.

5.2.2.1 Soil Boring and Soil Sample Collection

Each boring was advanced to at least 22 feet below the ground water table using a six-inch inside diameter hollow stem auger fitted with a center plug. The on-site geologist used drill cuttings to classifly the lithologic characteristics of the subsurface soil according to the U.S. Soils Classification System. Drilling and sample logs are presented in Appendix B. Drill cuttings were collected in clean 55-gallon drums and stored on-site for later disposal.

As each boring was advanced, a clean stainless steel spatula was used to collect approximately four ounces of soil from the auger flights per linear foot of drilling. A continuous sample was collected from each ten foot section of drilling. Each ten-foot continuous sample was homogenized and stored on ice in coolers until all samples designated for a composite were collected. Sample compositing was designed to provide soil data at depths corresponding to burial depths and at depths from below the maximum burial depth to the maximum depth of the vadose (unsaturated) zone.

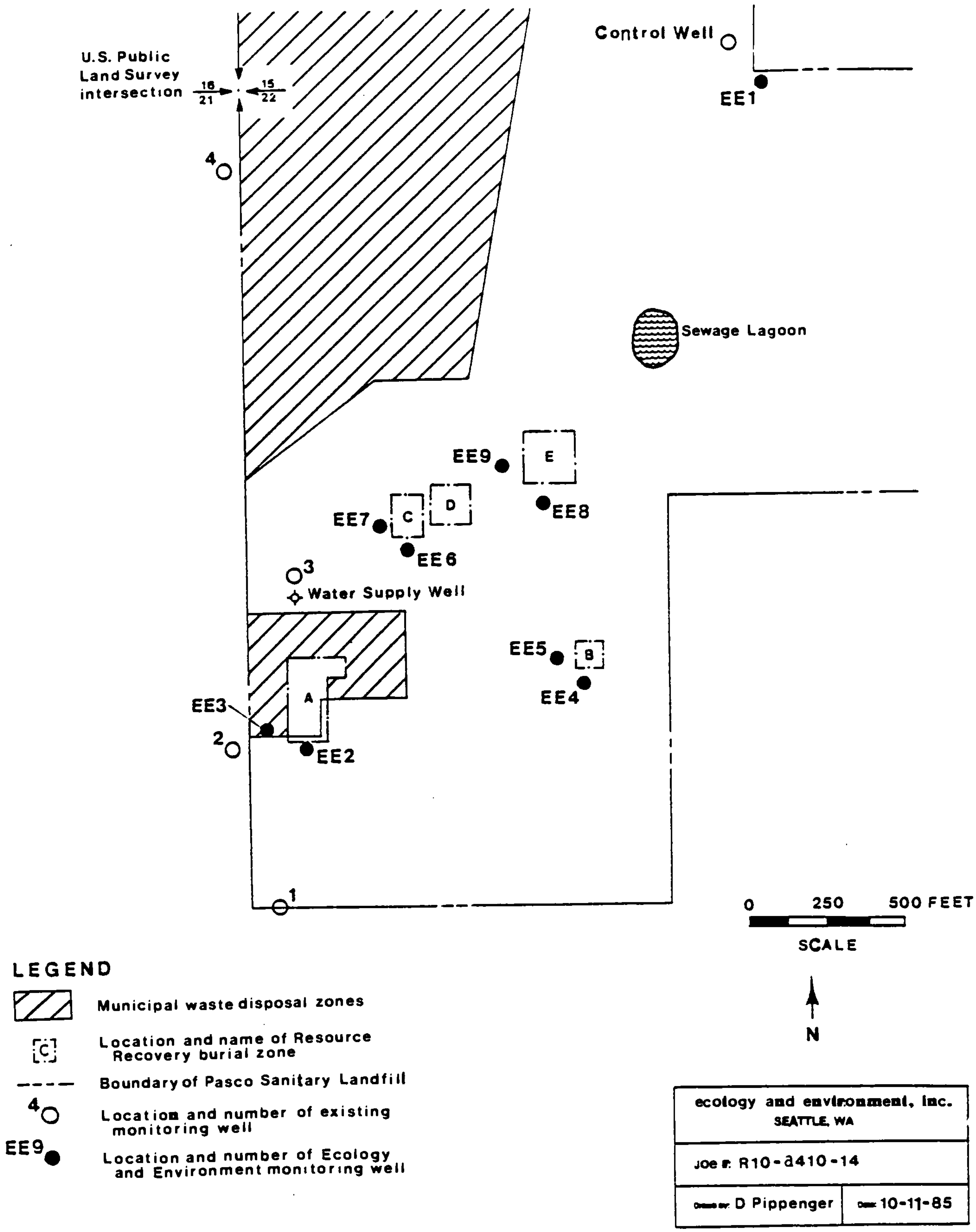


Figure 5.2 Monitoring well locations at Resource Recovery site, Pasco, Washington.

Soil compositing is detailed in Table 5.1. Surface soils were not collected in order to avoid interference from wind dispersed sanitary landfill materials and crop spraying materials, and because waste burial practices were expected to prevent upward migration of contaminants.

TABLE 5.1
SUBSURFACE SOIL SAMPLE SUMMARY

Location	Well No.	Matrix	Type	Depth Below Grade
Background	EE-1	Soil	Composite	10-30'
	EE-1	Soil	Composite	30-58'
Zone A	EE-2	Soil	Composite	10-30'
	EE-2	Soil	Composite	30-68'
	EE-3	Soil	Composite	10-30'
	EE-3	Soil	Composite	30-65'
Zone B	EE-4	Soil	Continuous	10-20'
	EE-4	Soil	Composite	20-43'
	EE-5	Soil	Continuous	10-20'
	EE-5	Soil	Composite	20-52'
Zone CD	EE-6	Soil	Composite	10-30'
	EE-6	Soil	Composite	30-70'
	EE-7	Soil	Composite	10-30'
	EE-7	Soil	Composite	30-73'
Zone E	EE-8	Soil	Composite	10-30'
	EE-8	Soil	Composite	30-77'
	EE-9	Soil	Composite	10-30'
	EE-9	Soil	Composite	30-73'

Composite samples were generated by adding equal volumes of soil from continuous samples to a stainless steel container and thoroughly homogenizing the mixture.

Augers and associated drilling and sampling tools were routinely decontaminated between borings to minimize cross-contamination. Routine decontamination included:

- o high pressure hot soap and water wash
- o high pressure hot water rinse
- o nanograde acetone rinse
- o nanograde methanol rinse
- o final rinse with deionized, carbon-free water

Samples and composites were submitted to assigned Contract Laboratory Program (CLP) labs for Inorganic and Organic analyses, and to the EPA Region X Laboratory for herbicide analysis. Details of soil sample documentation, packaging and shipping are summarized in Appendix C. Analytical requirements are summarized in Appendix D.

Quality Assurance reviews are presented in Appendix E. The QA reviews were performed by E&E senior chemists for those samples analyzed through the CLP and by EPA personnel for those samples analyzed at the EPA Region X Laboratory. The data were, in general, judged to be acceptable, except where flagged with qualifiers which modified the usefulness of individual values.

5.2.2.2 Well Installation and Ground Water Sampling

All nine E&E monitoring wells were constructed of two-inch inside diameter (I.D.) stainless steel casing with a twenty foot length of wire-wound stainless steel well screen having a slot size of 0.010 inches. Wells were set inside the hollow stem auger and the annular space was filled as the augers were withdrawn. The lower annular space of each well was backfilled with coarse sand to at least two feet above the screen. A fine-grained sand cap of one to three feet was placed over the coarse sand pack. The annular space from the sand cap to approximately ten feet below ground surface was pressure grouted from the bottom up with a bentonite slurry. The remaining ten feet were sealed with cement grout. A six-inch outside diameter (O.D.) protective steel casing with locking cover set at least three feet into the cement and extending two feet above ground level was placed over each well for protection (Figure 5.3).

Well development was accomplished by purging and backflushing each well four times using approximately 15 gallons of well water each time. At the end of this process, the water was clear and free of sand. Well completion diagrams and construction details are presented in Appendix B.

After development, each well was allowed to equilibrate at least 24 hours prior to collection of a ground water sample. The static water level in each well was measured and four times the standing water volume was purged from each well. After appropriate purging, sample collection was accomplished with a clean stainless steel top loading bailer. pH, conductivity, and water temperature were measured at this time.

Existing JUB monitoring wells at the PSL were also purged and sampled in the same manner as the E&E wells. Development, purge, and decontamination waters were collected in clean 55-gallon drums and stored on-site for later disposal. Ground water sampling is summarized in Table 5.2. Figure 5.4 illustrates monitoring well screen and ground water depth measured below ground surface at the time of sample collection. Ground water elevations were measured December 20-21, 1985; ground water contours based on this sampling episode are shown in Figure 5.5.

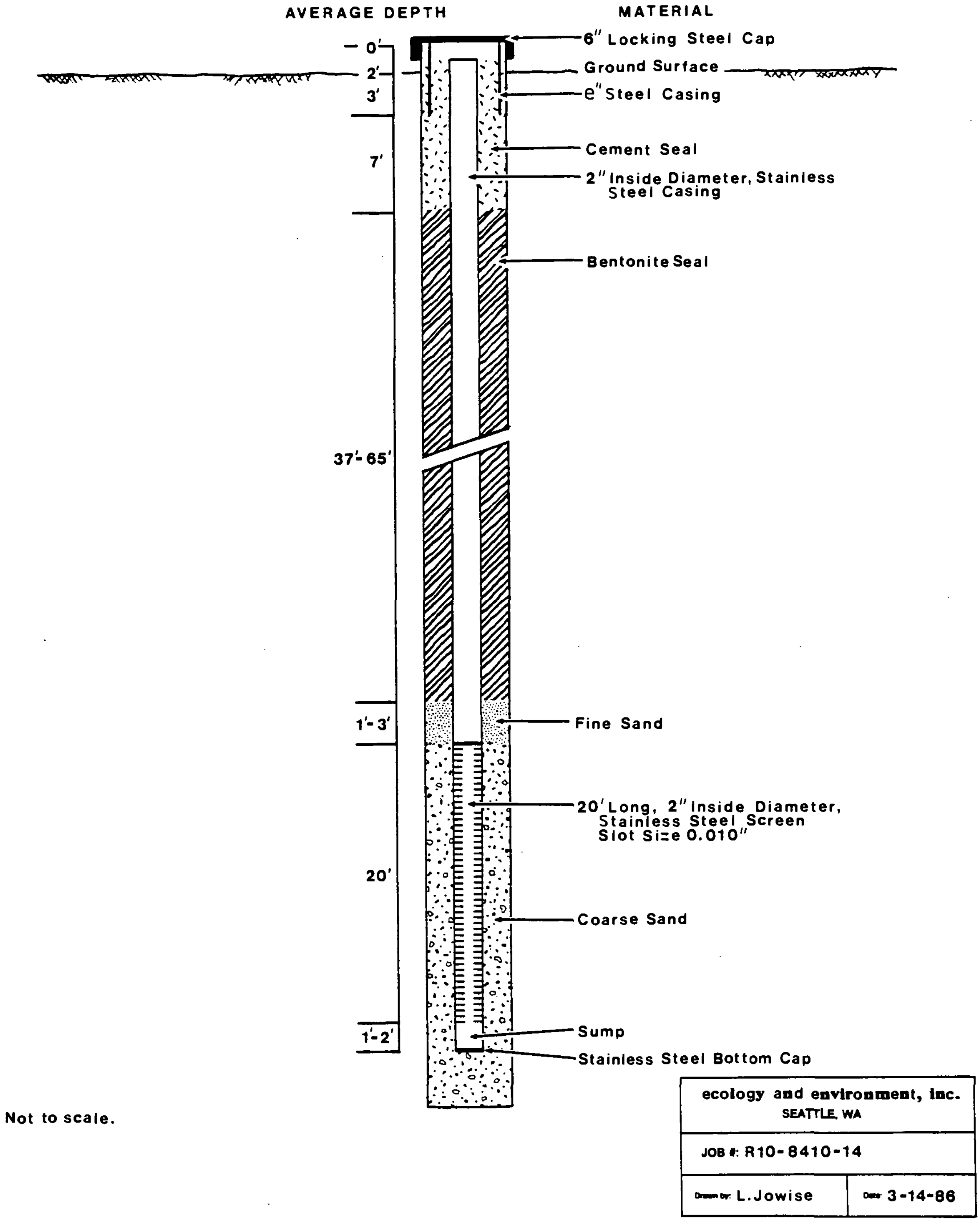


Figure 5.3 General well construction diagram of Ecology and Environment, Inc. monitoring wells at Resource Recovery study area, Pasco, Washington.

TABLE 5.2
GROUND WATER SAMPLE SUMMARY

Location	Well No.	Matrix	Type
Background	EE-1	Water	Grab
Zone A	EE-2	Water	Grab
	EE-3	Water	Grab
Zone B	EE-4	Water	Grab
	EE-5	Water	Grab
Zone CD	EE-6	Water	Grab
	EE-7	Water	Grab
Zone E	EE-8	Water	Grab
	EE-9	Water	Grab
PSL	JUB-1	Water	Grab
	JUB-2	Water	Grab
	JUB-3	Water	Grab
	JUB-4	Water	Grab
	JUB Control	Water	Grab
	WSW	Water	Grab

Aqueous samples were submitted to assigned CLP laboratories for Inorganic and Organic analyses, and to the EPA Region X Laboratory for herbicide analyses. Details of aqueous sample documentation, packaging and shipping are summarized in Appendix C. Analytical requirements are summarized in Appendix D.

Quality Assurance reviews are presented in Appendix E. The QA reviews were performed by E&E senior chemists for those samples analyzed through the CLP and by EPA personnel for those samples analyzed at the EPA Region X Laboratory. The data were, in general, judged to be acceptable, except where flagged with qualifiers which modified the usefulness of individual values.

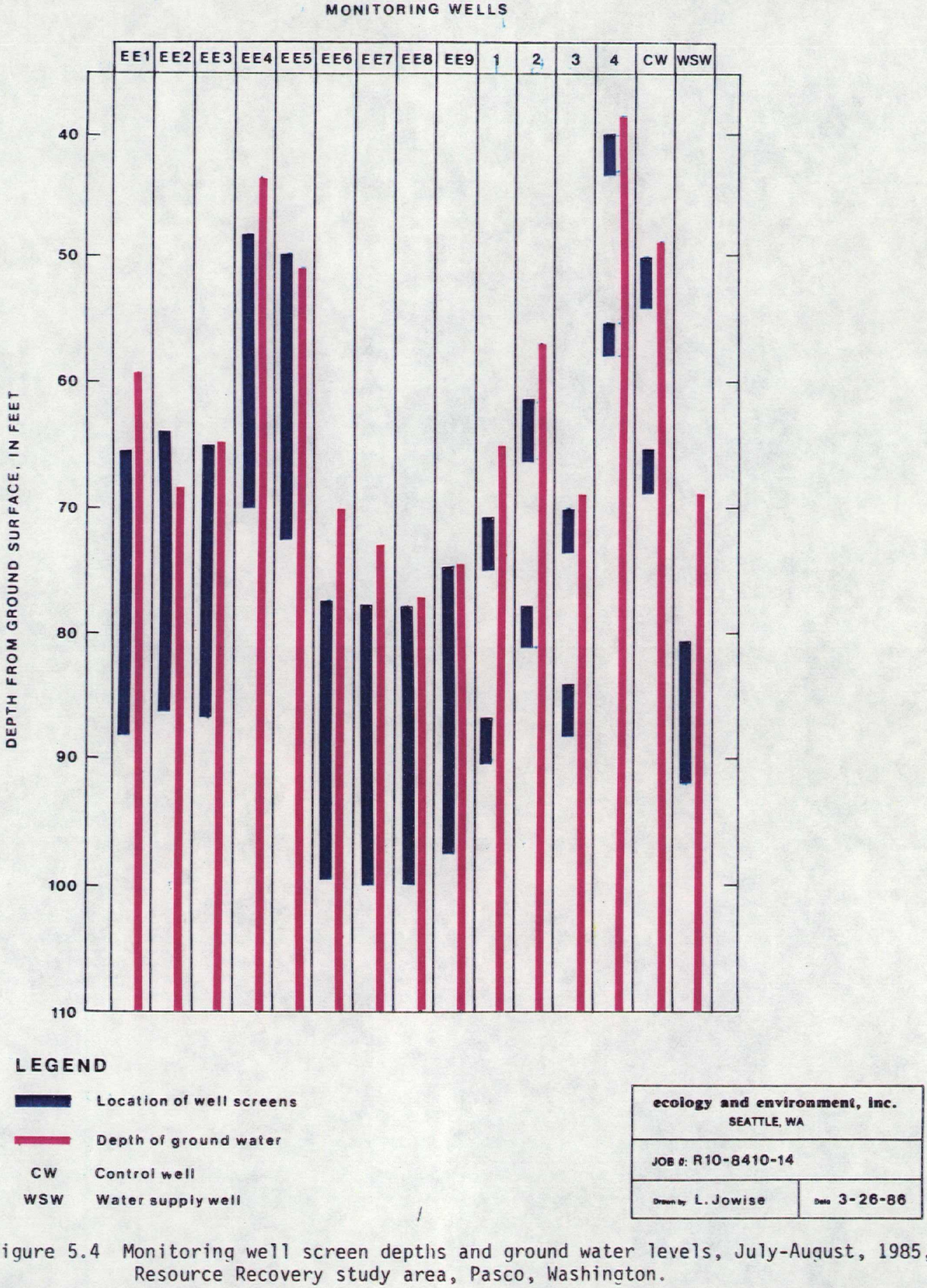


Figure 5.4 Monitoring well screen depths and ground water levels, July-August, 1985, Resource Recovery study area, Pasco, Washington.

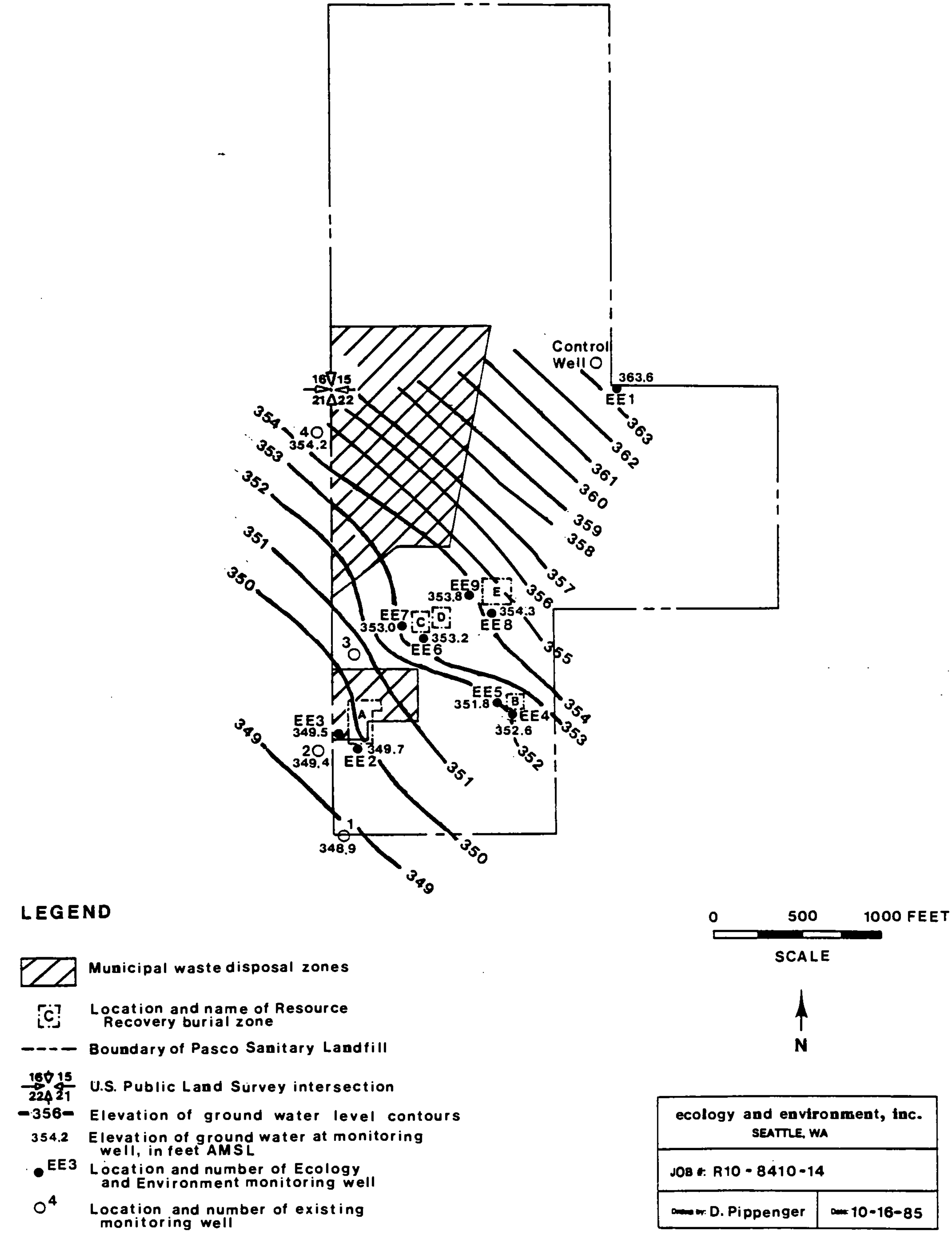


Figure 5.5 Contour map showing elevation of ground water, in feet AMSL, at Resource Recovery study area on December 20-21, 1985.

6.0 RESULTS AND DISCUSSION

6.1 Introduction

Presentation and interpretation of the geological and chemical data generated during Task 3 was the goal of Task 4. The reduced data is presented and discussed in the following sections.

6.2 Subsurface Soil Lithology

The upper one to two feet of soils at the site are loamy to very fine-grained sandy soils. Wind erosion and excavation has removed all or part of this layer exposing the plastic liner in places. From zero to ten feet below ground surface are silty sands. This is followed by a fine- to coarse-grained sand unit at 25 to 55 feet below ground surface. The sand is composed of clear to frosted quartz grains and brown, possibly basaltic, grains. In places the sand is cemented into thin layers. Occurring below the sand unit to the bottom of each borehole are clean gravels to gravelly sands with interbedded, unconsolidated sands.

The three major lithological units described above are found at varying depths in each borehole, indicating lateral continuity of the units across the site. Ground water was encountered between 43 and 77 feet below ground surface (Figure 6.1). Subsurface lithologies are summarized in Figure 6.2.

6.3 Analytical Results For Soils

6.3.1 Subsurface Soil Gases

An HNU Model PI-101 was used for ambient air monitoring of organic vapors during drilling. Levels above background were encountered only at monitoring wells EE-2 and EE-3. Boring at EE-3 penetrated a strata of municipal trash which included: wood, aluminum cans, and plastic material between three and seventeen feet below ground surface. Readings of 500 ppm

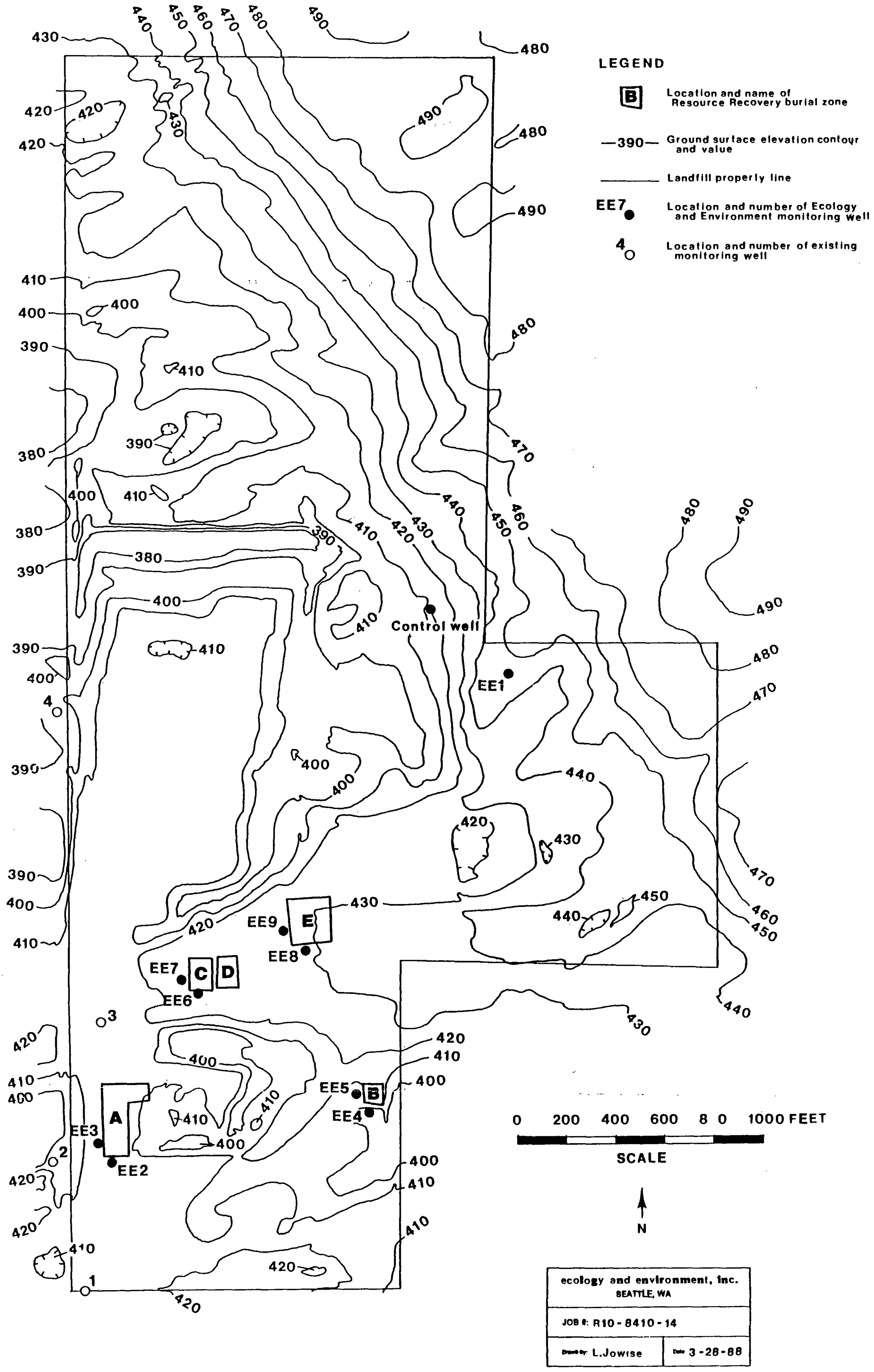


Figure 6.1 Contours showing ground surface elevations, in feet AMSL, at Resource Recovery study area, Pasco, Washington.

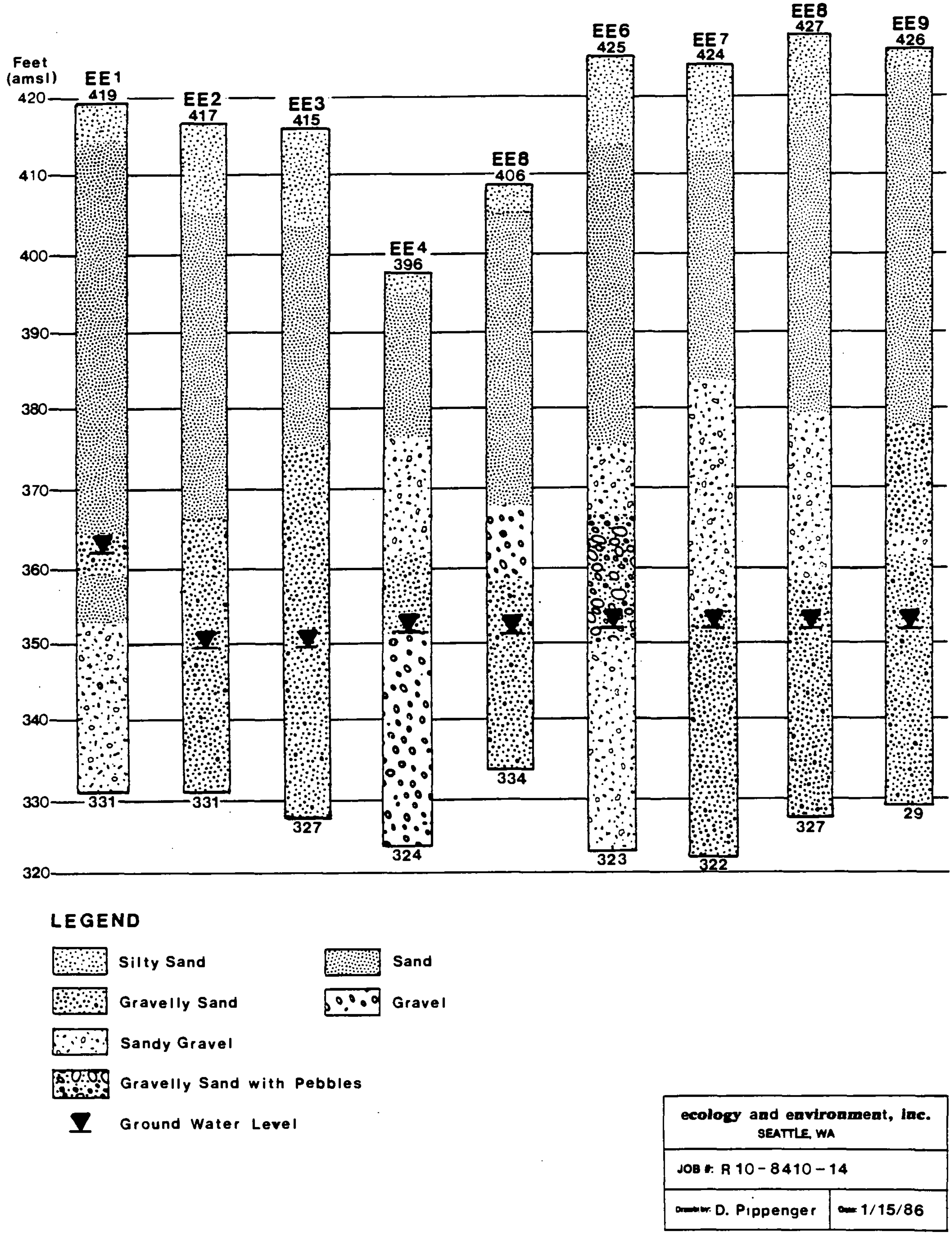


Figure 6.2 Comparison of lithology of monitoring wells at Resource Recovery study area, Pasco, Washington.

at the borehole exit were probably due to methane-like gases normally associated with decomposition of organic materials in landfills. The maximum reading at EE-2 was 7 ppm and probably resulted from migration of soil gases from the old municipal waste burial zone which surrounds Resource Recovery burial Zone A.

6.3.2 Subsurface Soil Volatile Organic Compounds

The combination of drilling techniques, ambient weather conditions, sample collection methodology, and subsurface lithology presented an unacceptably high probability of sample alteration, primarily through volatilization and loss of contaminants in the soil, prior to analysis by a laboratory. Therefore, no soil samples were submitted for volatile organic analysis.

6.3.3 Subsurface Soil Base/Neutral/Acid (BNA) Organic Compounds

Low levels of Benzo (a) pyrene were found in the shallow and deep soil samples at EE-7 and in the deep soil sample from EE-3. Phenol was found in the EE-3 deep soil sample. Several compounds were indentified in the shallow soil sample from EE3. No BNAs were detected in any of the other soil samples.

Table 6.1 is a summary of all BNA data where compounds were detected and identified. Data from all BNA soil analyses are presented in Appendix F.

Many of the compounds listed in Table 6.1 are polycyclic aromatic hydrocarbons (PAHs), the major components of creosote (17). Creosote is one of the materials reported to have been disposed of in the vicinity of Zone A prior to use of the area by Resource Recovery Corporation. Table 6.2 presents pure creosote component concentrations normalized to

TABLE 6.1
POSITIVELY IDENTIFIED BASE/NEUTRAL/ACID COMPOUNDS
IN SUBSURFACE SOILS
(ug/kg)

COMPOUNDS	Sample Number	EE-3 (10-30')	EE-3 (30'-GW)	EE-7 (10-30')	EE-7 (30'-GW)
PHENOL			1900J		
NAPHTHALENE		1700J			
2-METHYLNAPHTHALENE		1200J			
ACENAPHTHENE		370J			
DIBENZOFURAN		190J			
FLUORENE		270J			
PHENANTHRENE		1300J			
ANTHRACENE		200J			
DI-N-BUTYL PHTHALATE		2000J			
FLUORANTHENE		960J			
PYRENE		1400J			
BUTYL BENZYL PHTHALATE		430J			
BENZO (A) ANTHRACENE		320J			
CHRYSENE		220J			
DI-N-OCTYL PHTHALATE		1900J			
BENZO (A) PYRENE			150J	170J	160J

J = ESTIMATED CONCENTRATION (ANALYTICAL QUALITY CONTROL CRITERIA NOT COMPLETELY ACCEPTABLE)
GW = Ground Water

TABLE 6.2
COMPARISON OF CREOSOTE COMPOSITION RATIOS
TO SHALLOW SOIL DATA FROM EE-3

COMPOUND	IN CREOSOTE	EE3 10-30FT.
PHENOL	--	--
NAPHTHALENE	.14	.81
2-METHYLNAPHTHALENE	.06	.57
ACENAPHTHENE	.43	.29
DIBENZOFURAN	.24	.15
FLUORENE	.48	.21
PHENANTHRENE	1.0	1.0
ANTHRACENE	.10	.15
FLUORANTHENE	.48	.74
PYRENE	.41	1.1
BENZO (a) ANTHRACENE	TRACE	.25
CHRYSENE	.14	.17
BENZO (a) PYRENE	TRACE	NOT DETECTED

phenanthrene concentration and compares them to ratios found in shallow soil sample EE-3. Weathering of each component of creosote proceeds at different environmental rates. Data from other landfills also exhibits similar variations from unweathered ratios (18). Increased levels of naphthalenes may be due to coal tar, which is often mixed with creosote in wood preservatives.

Phenol (carbolic acid), a common creosote additive, was identified in EE-3 soil. Phenol is extremely soluble in water as compared to the components of creosote and coal tar and has a much lower log Poet (octanol/water partition coefficient) value indicating a lower affinity towards soil adsorption (19). Migration downward as surface rain water percolates through the soil is expected.

Three phthalates were also identified. Phthalates are used and formulated in plastizing agents, plastic manufacturing, recycling, and processing. They are ubiquitous in the environment and nearly always encountered in landfills (20). Phthalates are highly lipophilic and exhibit low aqueous solubility; they are similar to creosote in this respect.

Benzo (a) pyrene, a high molecular weight PAH, is a combustion by-product of open air refuse burning (21). Because it was detected at low levels in only three samples, it is not expected to present a hazard despite its published toxicity.

Phenol, PAHs, and phthalates exhibit toxicity through ingestion and in aquatic organism testing. However, it is inappropriate to extrapolate this toxicity data to subsurface soil values.

6.3.4 Subsurface Soil Pesticide and PCBs

Only two contaminants were positively identified, both in shallow soil at EE-3:

PCB	CONCENTRATION
Aroclor 1242	3100 ug/kg
Aroclor 1254	1400 ug/kg

Both values are estimates, as laboratory quality control did not meet EPA criteria. It is probable that because both Aroclors are mixtures of chlorinated biphenyls, concentrations reported are overestimates of "true" levels. PCBs are extremely lipophilic and virtually insoluble in water. They were used primarily in electrical transformers and capacitors, but many waste oils are contaminated with PCBs (22). Pesticide and PCB data are presented in detail in Appendix F.

PCBs are readily absorbed from aqueous solution onto any solid particles and do not easily leach from soil (23, 24). The rate of PCB movement in saturated soil has been found to be between one-tenth and one one-hundredth the rate of ground water movement (25). Rates of PCB mobility in soil vary, however, with the most heavily chlorinated PCBs being the least mobile. Therefore, migration is not expected to be significant (26).

The toxicity of PCBs has been documented (20) but extrapolation of this hazard to soil data is not possible. The levels are far less than 50,000 ug/kg, which marks the lowest level at which an oil is considered contaminated.

6.3.5 Subsurface Soil Herbicides

No measurable amounts of 2,4-D; 2,4,5 T; 2,4,5-TP (Silvex); or MCPA were detected in any of the subsurface soil samples. Neither were any of the reported components of 2,4-D Bleed; 2,4-DCP Tar; or MCPA Tar solid wastes from herbicide production identified. Herbicide analysis data is presented in Appendix F.

6.3.6 Subsurface Soil Tentatively Identified Compounds

A limited number of compounds , Table 6.3, were detected which are not on the Hazardous Substance List (HSL). Positive identification of all of these compounds was not possible and quanities are estimates only. Analytes appear to be chiefly hydrocarbons of unknown origin. Nineteen compounds were detected in the shallow soil sample from EE-3. This sample was collected in the former open-burning and municipal waste disposal area. Again, the presence of this class of compounds is consistent with historical waste disposal practices. A complete summary of this data is presented in Appendix F.

6.3.7 Subsurface Soil Inorganic Results

Results have been statistically summarized in Table 6.4. Appendix F contains a complete list of inorganic soil analyses.

Minimum and maximum concentrations of each element are presented with corresponding sample location number to display the range of values measured for each analyte. The median is the middle value of a set of data points. All shallow subsurface soil data has been combined and statistically reduced to yield: average concentration, standard deviation, and skew. Similar data is presented for the deep soil samples. The Student's t-test was employed to determine if significant differences exist between composition of shallow versus deep soil samples. Critical (calculated) t values greater than tabled, indicate a significant difference exists between the two soil populations at the 90% confidence interval.

Aluminium, calcium, chromium, magnesium, manganese, and potassium concentrations in shallow soils are statistically greater than in deep soil samples. The highest soil concentrations of mercury, barium, and sodium were detected in EE-9 soils. These elements have been identified as compo-

TABLE 6.3
SUMMARY OF TENTATIVELY IDENTIFIED ORGANIC COMPOUNDS
SUBSURFACE SOILS
(ug/kg)

	SAMPLE LOCATIONS AND DEPTH			
COMPOUND	EE-3 10-30'	EE-3 20'-GW	EE-5 10-30'	EE-5 20'-GW
UNKNOWN	4200J			
DIMETHYL BENZENE ISOMER	1700J			
DIMETHYL BENZENE ISOMER	1200J			
UNKNOWN	4600J			
1-ETHYL-2-METHYL BENZENE	860J			
TRIMETHYL BENZENE	1300J			
DECANE	1800U			
P-PHOSPHORIC ACID, TRIBUTYL ESTER	1700J			
UNKNOWN	5900J			
UNKNOWN	2000J			
UNKNOWN	4200J			
UNKNOWN	7700J			
UNKNOWN HYDROCARBON	2900J			
UNKNOWN	5000J			
UNKNOWN	1800J			
UNKNOWN	9400J			
UNKNOWN	2300J			
UNKNOWN	2400J			
UNKNOWN	300J			
2-BUTOXY ETHANOL		520J		
UNKNOWN		260J		
UNKNOWN			200J	
UNKNOWN				220J

J: ESTIMATED CONCENTRATION ONLY
GW: GROUND WATER

TABLE 6.4
RESOURCE RECOVERY CORP., PASCO, WA.
STATISTICAL SUMMARY OF INORGANIC RESULTS FOR SOIL
(mg/kg)

	ALL SOIL DATA					SHALLOW SUBSURFACE SOIL SAMPLES			DEEP SUBSURFACE SOIL SAMPLES					
PARAMETER	MINIMUM CONC.	SAMPLE LOCATION	MAXIMUM CONC.	SAMPLE LOCATION	MEDIAN	AVERAGE	STANDARD DEVIATION	SKEW	AVERAGE	STANDARD DEVIATION	SKEW	CRITICAL T	TABLED T	SIGNIFICANT DIFFERENCE
ALUMINIUM	4671.00	EES 20'-GW	8934.00	EES 10-20'	7066.50	7868.44	831.73	0.13675	5762.11	960.12	0.37751	4.97	1.75	YES
ANTIMONY	4.00	EE6 10-30'	10.00	EE1 30'-GW	6.50	6.56	1.24	-0.76624	6.78	1.39	1.58768	-0.36	1.75	NO
ARSENIC	3.20	EE1 30'-GW	7.10	EES 10-20'	3.30	3.69	1.94	-0.04869	3.26	0.05	-0.22361	0.67	1.75	NO
BARIUM	79.00	EES 20'-GW	652.00	EE9 10-30'	105.00	169.33	181.15	2.46688	96.33	12.10	-0.14216	1.21	1.75	NO
BERYLLIUM	0.30	EE3 10-30'	0.60	EE6 30'-GW	0.50	0.50	0.09	-1.22474	0.41	0.11	0.45560	#	1.75	#
CAOMIUM	1.00	EE1 10-30'	1.40	EE3 10-30'	1.00	1.18	0.34	1.82571	1.04	0.10	2.06732	1.13	1.75	NO
CALCIUM	7616.00	EES 20'-GW	15703.00	EES 10-20'	11169.00	11946.00	1888.94	0.44513	10223.78	1889.17	0.68412	1.93	1.75	YES
CHROMIUM	4.00	EE4 20'-GW	28.00	EE3 10-30'	10.50	13.44	5.53	2.35936	7.67	1.94	-0.48686	2.96	1.75	YES
COBALT	11.00	EE2 10-30'	15.00	EE6 30'-GW	13.00	12.44	1.01	-0.22307	12.44	1.33	0.46128	*	1.75	NO
COPPER	10.00	EES 20'-GW	19.00	EE3 10-30'	12.00	13.00	2.96	1.22938	11.67	1.22	0.67358	1.25	1.75	NO
IRON	20000.00	EE2 10-30'	27462.00	EE4 10-20'	22890.00	23348.44	2483.46	0.25723	22570.56	1684.74	1.18219	0.78	1.75	NO
LEAD	2.90	EES 20'-GW	100.00	EE3 10-30'	5.45	16.82	31.23	2.46327	4.16	0.96	0.82732	1.22	1.75	NO
MAGNESIUM	4523.00	EES 20'-GW	8363.00	EES 10-20'	6187.50	6796.56	755.59	0.79536	5310.00	712.32	-0.06348	4.29	1.75	YES
MANGANESE	313.00	EES 20'-GW	486.00	EE5 10-20'	416.50	435.56	36.22	0.20935	390.11	46.19	-0.09057	2.32	1.75	YES

TABLE 6.4 (CONT.)

STATISTICAL SUMMARY OF INORGANIC RESULTS FOR SOIL
(mg/kg)

	ALL SOIL DATA					SHALLOW SUBSURFACE SOIL SAMPLES			DEEP SUBSURFACE SOIL SAMPLES					
PARAMETER	MINIMUM CONC.	SAMPLE LOCATION	MAXIMUM CONC.	SAMPLE LOCATION	MEDIAN	AVERAGE	STANDARD DEVIATION	SKEW	AVERAGE	STANDARD DEVIATION	SKEW	CRITICAL T	TABLED T	SIGNIFICANT DIFFERENCE
MERCURY	0.10	EE1 10-30'	0.60	EE9 10-30'	0.10	0.18	0.16	2.17238	0.11	0.03	2.47487	1.19	1.75	NO
NICKEL	8.00	EE1 10-30'	14.00	EES 10-20'	9.00	9.78	1.79	1.60545	8.67	0.50	-0.70711	#	1.75	#
POTASSIUM	1508.00	EE2 30'-GW	2942.00	EE4 10-20'	2519.00	2592.22	166.35	0.37228	2105.00	365.50	-0.28827	4.39	1.75	YES
SELENIUM	1.80	EE1 10-30'	9.50	EE7 10-30'	1.90	3.00	2.53	2.17271	2.66	2.38	2.47289	0.30	1.75	NO
SILVER	1.70	EE4 20'-GW	3.50	EE8 10-30'	2.60	2.62	0.56	0.04378	2.44	0.60	0.37146	0.65	1.75	NO
SODIUM	522.00	EE2 10-30'	1406.00	EE9 10-30'	605.00	736.33	270.82	1.85132	587.78	41.30	0.34826	1.63	1.75	NO
THALLIUM	2.00	EE1 10-30'	5.00	EE6 10-30'	2.00	2.44	1.01	2.06732	2.00	*	*	1.32	1.75	NO
TIN	9.00	EE1 10-30'	11.00	EE4 10-20'	10.00	10.00	0.50	*	9.78	0.44	-1.33631	1.00	1.75	NO
VANADIUM	35.70	EE7 30'-GW	61.30	EE4 10-20'	44.45	45.92	6.77	1.31200	44.33	5.76	0.85666	0.54	1.75	NO
ZINC	40.00	EES 20'-GW	218.00	EE7 10-30'	53.50	76.00	53.98	2.35143	47.67	6.36	0.66529	1.56	1.75	NO

MOTE: STATISTICAL ANALYSES INCLUDE VALUES FLAGGED U AND J
STUDENTS T-TEST ASSUMES DATA ARE NORMALLY DISTRIBUTED
* DENOTES PARAMETER WAS NOT ANALYZED FOR OR CONTROL SAMPLES WERE NOT IDENTIFIED
R DENOTES PARAMETER WAS REJECTED
\# THE STUDENT'S T-TEST STATISTIC IS NOT APPLICABLE BECAUSE ALL BERYLLIUM AND NICKEL DATA ARE LESS THAN A FACTOR OF 2 ABOVE THE DETECTION LIMIT.

nents of chlor-alkali wastes in the adjacent burial Zone E. Cadmium, copper, chromium and lead values were highest in soils at EE-3, the former municipal waste disposal area. Zinc and several other metals were measured above the statistical average soil levels at EE-7, adjacent to the former open pit which received liquid metal cleaning and finishing wastes. No data point was significantly different from average at the 99% confidence interval.

6.4 Analytical Results For Ground Water

6.4.1 Field Measurements of pH, Conductivity, and Temperature

Three parameters (pH, conductivity, and temperature) were measured in water with portable instruments in the field, Table 6.5.

Specific conductivity is an indirect measure of total dissolved solids in water, however, no direct relation exists because conductivity is a function of electrolytic species present. pH is used to measure the acidity or basicity of dilute aqueous solutions. Neither conductivity nor pH exceed Federal Drinking Water Standards.

6.4.2 Volatile Organic Compounds Detected in Ground Water

Table 6.6 lists volatile organic compounds detected in wells at the site. Federal Drinking Water Guideline Recommended Highest Safe Levels (27) for each compound are also included in Table 6.6. Neither methylene chloride nor acetone are included in the table because levels measured are indicative of laboratory generated contamination.

Volatile organics (VOAs) were detected in groundwater from only three monitoring wells: EE-2, EE-3, and JUB-2. Monitoring well EE-3 is located beneath an area formerly used for open burning and municipal waste

TABLE 6.5
FIELD MEASUREMENTS TAKEN AUGUST 8, 1985

MONITORING WELL	CONDUCTIVELY UMHOS	TEMPERATURE °C	pH
EE1	490	18	7.7
EE2	710	17	7.2
EE3	570	18	6.8
EE4	600	18	*
EE5	700	18	*
EE6	475	18	*
EE7	491	18	*
EE8	490	17	*
EE9	550	18	*

* : NO DATA

TABLE 6.6
POSITIVELY IDENTIFIED VOLATILE ORGANIC COMPOUNDS IN GROUND WATER
(ug/l)

COMPOUND	FEDERAL DRINKING WATER GUIDELINES HIGHEST SAFE LEVEL	SAMPLE LOCATION EE-2	EE-3	JUB-2
1,1-DICHLOROETHYLENE	400	5.0	50.0U	13.0
1,1-DICHLOROETHANE	-	15.0	64.0	35.0
TRANS-1, 2-DICHLOROETHYLENE	270	9.0	50.0U	15.0
CHLOROFORM	100	3.0	50.0U	17.0
1,1,1-TRICHLOROETHANE	1000	70.0	420.0	168.0
TRICHLOROETHYLENE	4.5	65.0	480.0	164.0
TETRACHLOROETHYLENE	3.5	32.0	5.0U	5.0U
TOLUENE	-	5.0U	230.0	5.0U
TOTAL XYLENE	620	5.0U	63.0	5.0U

disposal. Wells EE-2 and JUB-2 are both down gradient of ground water flow through this area. All three are on the perimeter of burial Zone A, Figure 5.2.

Interpretation of the data is complicated by elevated detection limits for the sample from well EE-3. Materials may have been present at EE-3 but below laboratory reported detection limits.

The seven chlorinated volatiles listed in Table 6.6 detected have numerous uses as solvents, degreasers, paint and varnish intermediates, paint removers, dry cleaning fluids, plastics manufacturing, organic synthesis, etc. The presence of these compounds in ground water below the former municipal waste disposal and burning area is not unusual. These compounds are ubiquitous in the drinking water of industialized areas (28).

All the compounds in Table 6.6 have high vapor pressures and a low potential for bioaccumulation. Removal of these compounds is almost exclusively through volatilization from the aqueous system and degassing out of the vadose zone followed by rapid oxidation in the atmosphere by hydroxyl radicals. Movement of these contaminants in ground water will be controlled in part by the following factors: density of the detected contaminants will cause downward vertical migration while volatility would lead to upward movement; high soil/water partition coefficients may result in adsorption onto soils retarding migration; bacteria may decrease contaminant concentrations through biodegradation; dispersion caused by diffusion may be assumed to be negligible; recharge and the soil matrix will control horizontal and vertical ground water advection.

Assuming a geometric progression for contaminant concentration gradients in ground water and using the data from EE-3 and either EE-2 or JUB-2, aqueous volatile organic concentrations could decrease to below 5 ug/l (the standard EPA/CLP detection limit for these compounds) less than 800 feet down gradient from monitoring well EE3. Since the dates of active site use are known, a migration rate has been estimated (based on this geometric decrease) to be very roughly 40-80 feet per year. The closest irrigation well is 1600 feet down gradient from well EE3, therefore, horizontal migration is not expected to be a significant problem. Irrigation wells are usually screened deeper in an aquifer than monitoring wells since a constant water supply for high volume pumping is required. Irrigation supply water may be vertically displaced away from potentially contaminated shallow zones of ground water. Studies of aquifer decontamination and water reclamation based on ambient air spray head aeration (29) have demonstrated a 90% removal of chlorinated volatile organics. Irrigation should produce an effect equivalent to aeration especially if volatilization from the wetted surface of soil is taken into account. Further, since irrigation water which percolates down through the vadose zone soil to ground water would be significantly less contaminated with these compounds than the ground water, dilution of ambient ground water contaminants by cleaner water will result.

Two aromatic volatile organics, toluene and xylene, were detected in ground water from monitoring well EE-3. The principal source of these compounds may be coal tar as noted in <u>Section 6.3.3</u>, although they are both major constituents of gasoline and are used in numerous paint and lacquer manufacturing processes (19).

High log Poet values for toluene and xylene mean adsorption may be significant. However, both toluene and xylene possess high vapor pressures and may biodegrade to methylated catechols (28). The principle mechanism for removal is volatilization and subsequent airborne photodecomposition. Environmental fate and movement should be similar to the chlorinated volatiles.

6.4.3 Base/Neutral/Acid (BNA) Organic Compounds Detected in Ground Water

4-methyl phenol was detected at 6 ug/l in water from monitoring well EE-3. Bis (2-ethylhexyl) phthalate (BehP) was detected in: EE-2 at 6 ug/l, EE-4 at 39 ug/l, and EE-5 at 7.8 ug/l. No other BNAs were detected in any of the other wells sampled by E&E. Appendix G contains complete tables of BNA data from aqueous analyses.

4-methylphenol (p-cresol) is a water soluble component of coal tar and further supports the record that this material was buried in the municipal waste disposal area above EE3. No drinking water quality guideline limits are reported for cresol.

BehP is in the same chemical family of compounds as the three phthalates identified in the BNA soil results from EE3. However, it is the least soluble of the four phthalates found, and its presence may be the result of laboratory induced contamination of the sample. No drinking water standards are reported for phthalates. BehP is not volatile and is likely to be absorbed onto soils rather than solubilize into water (28).

None of the PAHs found in soils at EE3 were detected in the ground water.

6.4.4 Pesticides and PCBs Detected in Ground Water

No pesticides or PCBs were reported in any of the sampled wells above laboratory detection limits. PCBs were not found in the ground water at EE-3, where both Aroclor-1242 and Aroclor-1254 were measured in the shallow soil sample. A complete data list is in Appendix G.

6.4.5 Herbicides Detected in Ground Water

No herbicides, herbicide production wastes or by-products were detected in any of the ground water samples collected during this investigation. Appendix G contains a complete listing of aqueous herbicide results.

6.4.6 Tentatively Identified Organic Compounds (TICs) in Ground Water

The largest number and highest amount of TICs detected was in water from monitoring well EE-3 (Table 6.7). Substituted benzene compounds predominate and may be components of coal tar, gasoline, or paint wastes. Anthropogenic origins for all TICs cannot be established. See Appendix G for a complete list of TIC data.

6.4.7 Inorganic Analyses of Ground Water

Table 6.8 summarizes the inorganic ground water results, however, no t-test statistics were computed. Lithologic data and inorganic soil analyses show uniform distribution of metals over the site. Ground water analysis results are extremely heterogeneous over very short distances. Elemental concentration bar graphs, projected onto a site map, are presented in Figures 6.3, 6.4, and 6.5 for three metals. The spatial variations in concentrations across the site shown in these figures do not reflect the expected levels based on ground water flow.

Significant variations in concentrations were found in adjacent wells throughout the site. The two upgradient background monitoring wells, EE-1 and JUB-Control are approximately 420 feet apart in similar lithologies and at the same ground water elevation. Concentrations at EE-1 are the lowest values measured while JUB-Control has the highest values for eighteen out of twenty-four analytes. Data from well sets EE-5/EE-4, JUB-3/WSW, and EE-2/EE-3/JUB-2 also show widely variable data for nearly all analytes. Of

TABLE 6.7
RESOURCE RECOVERY CORP., PASCO, WA.
SUMMARY OF TENTATIVELY IDENTIFIED BASE/NEUTRAL/ACID COMPOUNDS FOR
GROUNDWATER SAMPLES COLLECTED JULY/AUGUST 1985
(ug/l)

LOCATION:	EE1	EE2	EE3	EE4	EE5	EE6	EE7	EE8	EE9	JUB CNTR	JUB1	JUB2	JUB3	JUB4	WSW
COMPOUND															
ALCOHOL	190J														
ALCOHOL	20J														
ALKENE	600J	16J				62J									
HYDROCARBON	22J														
CARBOXYLIC ACID	12J														
CARBOXYLIC ACID	94J														
UNKNOWN	26J	3J	4J		15J	68J	12J								
SATURATED HYDROCARBON		22J													
UNKKNOWN		6J													
DIMETHYL BENZENE			696J												
DIMETHYL BENZENE			364J												
ALKYL BENZENE			12J												
SUBSTITUTED BENZENE			26J												
ALKYL BENZENE			120J												
TRIMETHYL BENZENE			42J												
METHYL KETONE			6J												
ALKYL BENZENE			40J												
ALKYL BENZENE			84J												
ALKYL BENZENE			20J												
ALKYL BENZENE			6J												
SUBSTITUTED ALKANE			16J												
SUBSTITUTED ALKANE			8J												
KETONE			10J												
KETONE						160J									
UNKNOWN						12J									
SUBSTITUTED CARBOXYLIC ACID							158J								
UNKNOWN								14J							
UNKNOWN								6J							
PHTHALATE								6J							
UNKNOWN									18J						
UNKNOWN									8J						
UNKNOWN									4J						
UNKNOWN				6.7J											
HYDROCARBON				11J											
UNKNOWN				27J											
HEXADECANOIC ACID				18J											
UNKNOWN				22J											
UNKNOWN				25J											
CARBOXYLIC ACID										7.6J	6.2J		4.8J	5.6J	
C-3 SUBSTITUTED BENZENE											6.2J		4.8J	7.2J	
C-2 SUBSTITUTED BENZENE												13J			

J: Estimated Concentration

TABLE 6.8
STATISTICAL SUMMARY OF INORGANIC RESULTS FOR ALL GROUND WATER
(ug/l)

PARAMETER	MINIMUM CONC.	SAMPLE LOCATION	MAXIMUM CONC.	SAMPLE LOCATION	MEDIAN	AVERAGE TEST SAMPLES	STANDARD DEVIATION TEST	SKEW TEST SAMPLES
ALUMINIUM	61.00	WSW	129800.00	JUB CNTR.	22560.00	32366.93	33734.22	1.68778
ANTIMONY	12.00	EE1/WSW	19.00	EE2	12.00	12.73	2.02	2.48679
ARSENIC	10.00	EE1/WSW	40.00	JUB WELL 4	10.00	14.04	10.00	2.15411
BARIUM	63.00	WSW	2148.00	EES	526.00	746.80	668.19	0.99745
BERYLLIUM	0.50	EEQ	10.40	JUB CNTR.	2.10	2.65	2.55	1.91232
CADMIUM	1.90	EE1/WSW	3.50	EE4	1.90	2.21	0.51	1.34235
CALCIUM	57180.00	WSW	332200.00	JUB CNTR.	94780.00	110555.33	70881.10	2.24792
CHROMIUM	11.00	WSW	176.00	JUB CNTR.	60.00	63.47	43.37	1.29584
COBALT	3.90	EE1/WSW	184.00	JUB CNTR.	32.00	47.45	48.86	1.54527
COPPER	1.70	WSW	254.00	JUB CNTR.	62.00	77.38	70.49	1.21140
IRON	24.00	WSW	268300.00	JUB CNTR.	52150.00	73957.53	72112.50	-
LEAD	5.00	WSW	180.00	JUB CNTR.	36.95	45.99	33.70	-0.69075
MAGNESIUM	20600.00	WSW	99060.00	JUB CNTR.	29930.00	37886.67	20654.54	1.92679
MANGANESE	3.00	WSW	5281.00	JUB CNTR.	1394.00	1742.80	1468.37	0.89281
MERCURY	0.13	EE1	1.00	JUB CNTR.	0.20	0.32	0.24	1.82907
NICKEL	16.00	WSW	138.00	JUB CNTR.	46.00	53.27	39.19	1.08324
POTASSIUM	7315.00	WSW	26000.00	JUB CNTR.	11690.00	12289.53	5052.73	1.60305
SELENIUM	5.00	WSW	25.00	JUB CNTR.	25.00	23.67	5.16	-3.47440
SILVER	3.30	EE1	19.10	JUB CNTR.	6.80	7.25	4.17	1.49099
SODIUM	31920.00	EE3	47580.00	EE2	35780.00	36338.67	4054.41	1.53454
THALLIUM	10.00	EE1/WWS	10.00	JUB CNTR.	10.00	10.00	*	*
TIN	18.00	EE1	88.00	JUB WELL 2	18.00	25.13	19.46	2.64291
VANADIUM	15.90	EE1	493.70	JUB CNTR.	111.30	136.81	123.82	1.67899
ZINC	8.00	WSW	673.00	JUB CNTR.	289.00	277.80	168.18	0.55741

NOTE: STATISTICAL ANALYSES INCLUDE VALUES FLAGGED U AND J
STUDENTS T-TEST ASSUMES DATA ARE NORMALLY DISTRIBUTED
* DENOTES PARAMETER WAS NOT ANALYZED FOR OR CONTROL SAMPLES WERE NOT IDENTIFIED
R DENOTES PARAMETER WAS REJECTED

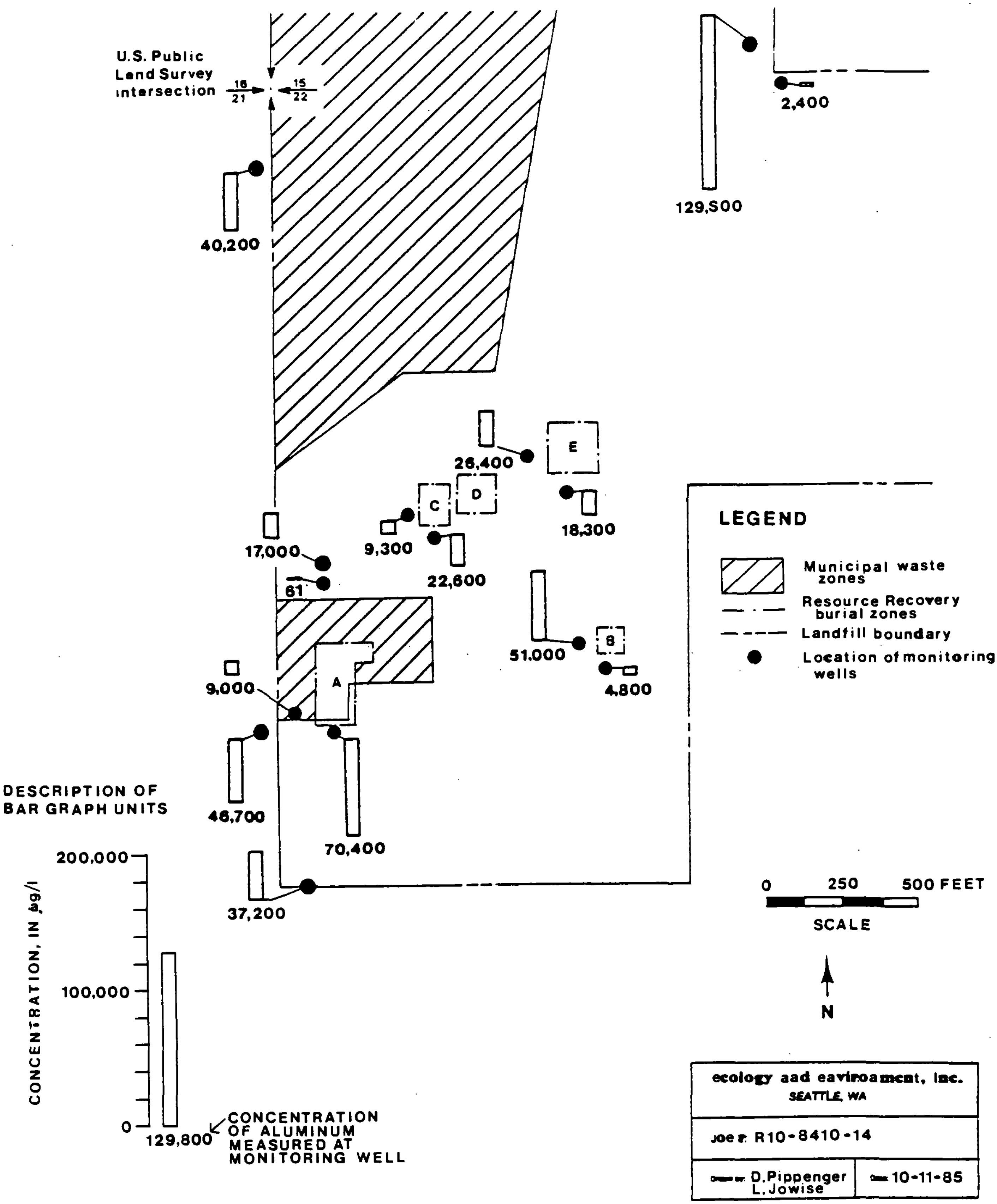


Figure 6.3 Concentration of aluminum, in micrograms per liter, measured in ground water at monitoring wells. Resource Recovery study area, Pasco, Washington.

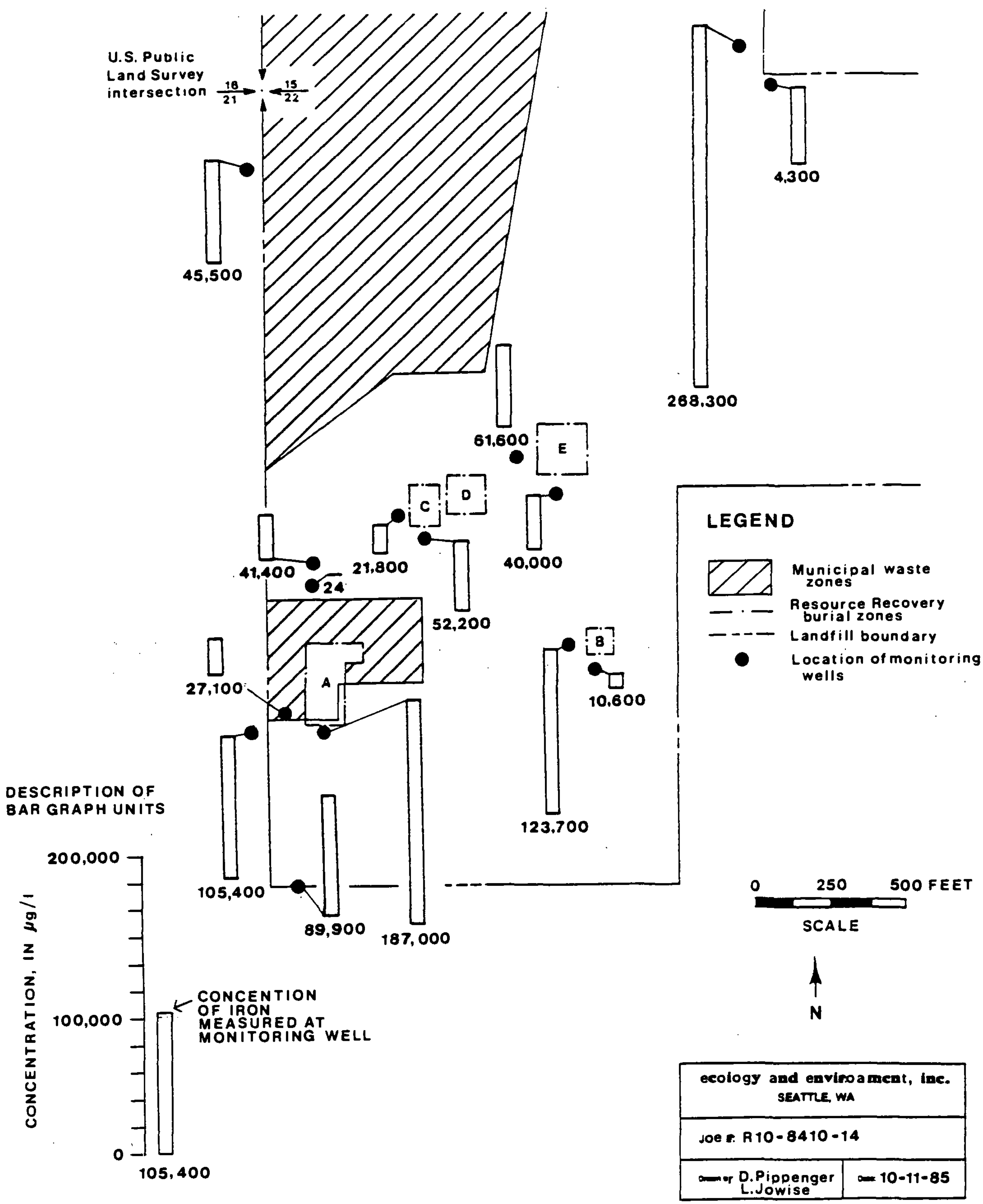


Figure 6.4 Concentration of iron, in micrograms per liter, measured in ground water at monitoring wells, Resource Recovery study area, Pasco, Washington.

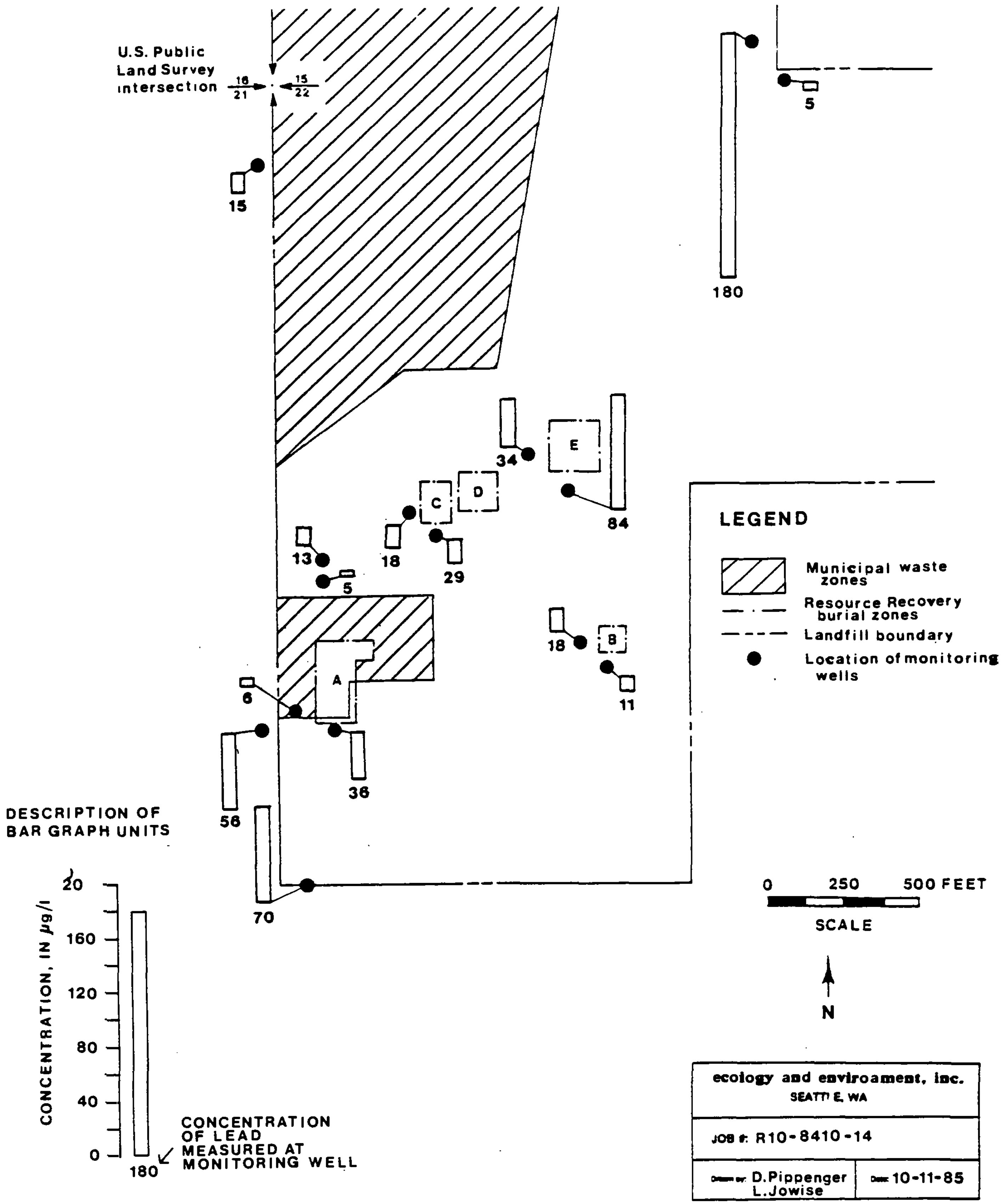


Figure 6.5 Concentration of lead, in micrograms per liter, measured in ground water at monitoring wells, Resource Recovery study area, Pasco, Washington.

the analytes with detectable quantities, only sodium demonstrates uniformity between wells. A concentration gradient based on dilution is not apparent because relative amounts of individual elements in each monitoring well are independent. The limited amount of conductivity and pH data provide no explanation of data variability.

Data collected from JUB monitoring wells over several years is presented in Table 6.9 along with the primary and secondary drinking water standards. In every case, concentrations increased between 1982 and 1985.

Rigorous Quality Assurance reviews of both field and analytical quality controls indicate that these anomalous data are not the result of field or lab errors. Variations in well construction probably do not account for the results.

Suspension of fine clay particles appears unlikely because the elemental distribution in groundwater does not watch the expected elemental distribution in either Montmorillonitic or Illitic clays (30).

Possible explanations for ground water anomalies include:

1. Unknown point sources of contaminants
2. Micro-acidic environments promoting dissolution
3. Highly channelized flow regime
4. High levels of non-electrolytic soluble species and/or dissolved solids
5. Unsuspected field or lab quality control problems

TABLE 6.9
RESOURCE RECOVERY, PASCO, WA.
RESULTS OF INORGANIC ANALYSES OF GROUND WATER VS. TIME a
(ug/1)

ELEMENTS	PRIMARY AND SECONDARY DRINKING WATER STANDARDS	JUB 1		JUB 2		JUB 3			JUB 4		JUB CONTROL		
		FEB. 1982	JULY/AUG. 1985	FEB. 1982	JULY/AUG. 1985	FEB. 1982	SEPT. 1984	JULY/AUG. 1985	DEC. 1982	JULY/AUG. 1985	FEB. 1982	SEPT. 1984	JULY/AUG. 1985
ALUMINIUM		*	37210	*	46670	*	41500	17030	*	40180	*	102000	129800
ANTIMONY		*	12U	*	12U	*	20U	12U	*	12U	*	20U	12U
ARSENIC	50	10.0U	10.0U	10U	12.0	10.0U	28J	10.0U	10U	40.0	10U	39J	37.2
BARIUM	1000	100U	896	100U	834	100U	785	350	500U	838	100U	[1631]	[1656]
BERYLLIUM		*	3.1	*	3.6	*	5U	1.7	*	3.0	*	7	10.4
CADMIUM	10	1U	2.8	1U	1.9U	1U	1U	1.9U	1U	1.9U	1U	1.9	1.9U
CALCIUM		*	101100	*	116100	*	*	77740	*	100700	*	*	332200
CHROMIUM	50	5	[60]	5U	[71]	5U	42	31	5U	[51]	5U	[106]	[176]
COBALT		*	67	*	87	*	50U	23	*	4	*	*	184
COPPER	1000	10U	103	10U	109	10U	120J	33	10U	77	10U	280J	254
IRON	300	[1600]	[89890]	[610]	[105400]	[350]	[97450]	[41430]	[700]	[95460]	[490]	[199900]	[268300]
LEAD	50	50	[70]	5U	[56]	50	[70]	13.2	5U	15.3	5U	[160]	[180]
MAGNESIUM		*	38990	*	41490	*	*	29140	*	39840	*	*	99060
MANGANESE	50	[110]	[2695]	[70]	[2232]	10U	[1694]	[733]	20	[1394]	40	[4380]	[5281]
MERCURY	2	0.50	0.6	0.5U	0.2	0.5U	0.2U	0.6	0.5U	0.2	0.5U	0.2U	1.0
NICKEL		*	61	*	50	*	63J	16U	*	23	*	162J	138
POTASSIUM		*	12410J	*	13420J	*	*	9598J	*	12290J	*	*	26000J
SELENIUM	10	50	25UJ	5U	25UJ	5U	2	25UJ	5U	250J	5U	2	25UJ
SILVER	50	50	9.8	5U	11.1	5U	10U	8.0	5U	9.3	5U	10U	19.1
SODIUM		*	35960	*	39370	*	*	35140	*	36120	*	*	41800
THALLIUM		*	10UJ	*	10UJ	*	10U	10UJ	*	10UJ	*	10U	10UJ
TIN		*	.18U	*	88	*	20U	18U	*	52	*	20U	18U
VANADIUM		*	164.5	*	195.8	*	200U	79.4	*	150.0	*	302	493.7
ZINC	5000	500	262	500	354	5U	207	132	SOU	211	SOU	514	673
CYANIDE		*	*	*	*	*	10U	*	*	*	*	10U	*

a - FEB. AND DEC. 1982 OATA - FROM JUB REPORT (12)
SEPT. 1984 DATA - E & E SITE INSPECTION (1)
JULY/AUGUST 1985 DATA - THIS STUDY
* - NOT ANALYZED
[ ] VALUE EXCEEDS DRINKING WATER STANDARDS

7.0 SUMMARY AND RECOMMENDATIONS

Resource Recovery Corporation received and disposed of several million gallons of liquid industrial wastes and 50,000 drums of material for disposal between 1972 and 1974. Liquids were evaporated to dryness from two lined and one unlined ponds and subsequently covered with layers of soil, poiyethylene sheeting, and capped with an additional soil layer. Drums were stacked and buried in two unlined pits capped with a similar surface liner system. Ecology and Environment, Inc. installed nine monitoring wells and submitted both soil and ground water samples to EPA contract labs for standard HSL organic and inorganic analyses and herbicides in order to document any migration or contamination from these burial zones.

7.1 Conclusions

The following points summarize E&E's conclusions reached in the investigation of Resource Recovery Corporation disposal site during 1985.

- o Ground water contours confirm the flow of ground water is towards the southwest.
- o Organic contamination in the soil was found almost exclusively in the shallow (10-30 feet) soil sample collected from the former municipal waste disposal and burn area.

  The low level organic contaminants identified in the soil are indicative of:

  - wood preservatives, e.g., creosote, coal tar, and phenol
  - plasticizers, e.g., phthalates
  - soil gas from organic decomposition, e.g., methane
  - transformer and capacitor fluid, e.g., PCBs
  - no herbicide or herbicide waste products were identified

- hydrocarbons of unknown origin, possibly the carrier for wood preservatives or diesel and lubricating oils.
- only the soil gases are expected to exhibit substantial migration.

o Inorganic soil constituents were uniformly distributed throughout the site with only these minor variations in concentrations:
  - slightly elevated barium, mercury, and sodium levels were associated with the shallow (10-30 feet) soil samples near the former chloroalkali waste pond.
  - zinc was slightly elevated in the shallow (10-30 feet) soil sample taken outside the former metal finishings waste pond.

o Ground water contamination by organics occurred only beneath or adjacent to the former municipal disposal and burn area:
  - volatile organics may be leaching from several source materials, including plastics, solvents, paints, gasoline, and coal tar
  - only trichloroethylene and tetrachloroethylene concentrations exceeded recommended drinking water levels
  - only 4-methylphenol was detected in the BNA fraction and may be due to coal tar
  - only trace amounts of phthalate were found
  - no PCBs or pesticides were found
  - no herbicides or herbicide waste products were identified
  - tentatively identified compounds are similar to those found in sediment samples
  - the potential effects on irrigation do not appear to be significant based on the expected horizontal contaminant gradients, vertical irrigation well depths, volatilization of contaminants

during spraying, ground surface volatilization, and subsequent ground water dilution effects.

- o Inorganic ground water data displayed unexplainably wide variations in concentration across the site and between adjacent monitoring wells:
  - barium, chromium, iron, lead, and manganese exceeded primary and secondary drinking water standards
  - a significant increase in nearly all inorganic species occurred between 1982 and 1985 at monitoring wells across the entire site
- o No special additional analyses for dioxin were required because potentially dioxin contaminated materials or precursors were not identified.
- o No exposure routes or significant hazards were identified as a result of disposal practices or sample analyses.
- o Migration rates for trichloroethylene and tetrachloroethylene have been estimated to be on the order of 40 to 80 feet per year.
- o In summary, the results indicate that trace amounts of contaminants may have migrated outside of Resource Recovery Corporation's burial Zones A, CD, and E as described above. No evidence of contaminant migration from Zone B (the herbicide waste drum burial zone) was found. Some of the contaminants identified near Zone A may have leached from the area around the zone which had been used as an industrial burial and municipal waste open-burning area prior to development by Resource Recovery Corporation.

7.2 Recommendations

- o Areas where erosion or site activities have exposed plastic liner should be recovered with soil to preserve liner integrity.

- Drill cuttings and water drummed during field operations may be disposed on-site.
- Resampling and re-analysis of samples from each of the on-site monitoring wells and several of the surrounding irrigation wells will be necessary in order to explain the inorganic ground water data.
- Continue monitoring ground water with annual or bi-annual sampling and analyses to detect any onset of migration from a burial zone.
- A recent EPA study at Alkali Lake, Oregon (31), where similar Rhodia herbicide wastes were emptied from drums and buried, found parts per trillion levels of polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans in the surface sediment. If herbicide or herbicide waste materials are detected by future monitoring around Zone B, the potential for dioxin contamination exists. However, as dioxins and furans have high partition coefficients (are readily and almost irreversibly adsorbed onto solids), their appearance in ground water is extremely unlikely.

REFERENCES

1. U.S.G.S. Quadrangle Map, Glade, Washington; 1:24,000, 1979.

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APPENDIX A

AERIAL PHOTOGRAPHY

TITLE: Resource Recovery
Pasco, Washington
Aerial Photograph

JOB #: R10-8410-14

ecology and environment, inc.
SEATTLE, WA

Date August 3, 1970 Scale: 1"=250'

TITLE:
Resource Recovery
Pasco, Washington
Aerial Photograph

JOB #: R10-8410-14

ecology and environment, inc.
SEATTLE, WA

Date May 11, 1973 Scale: 1"=335'

TITLE: Resource Recovery
Pasco, Washington
Aerial Photograph

JOB #: R10-8410-14

ecology and environment, inc.
SEATTLE, WA

Date April 12, 1978 Scale: 1"=185'

APPENDIX B

DRILLING AND SAMPLE LOGS

Project:	Resource Recovery	Job No:	TDD R10-841G-14
Boring No:	EE-1		
Baring Contr.:	Boyles Bros.	Location:	75' 11" SE of JUB control well
Boring Method:	Hollow Stem Auger	Surface Elev:	418.9 ft. Datum: AMSL
Logged by:	R. Holtz	Casing Elev:	421.1 ft. Datum: AMSL
Date Completed:	8/02/85	Total Depth:	88 ft. Datum: Below TOC
		Groundwater:	363.6 ft. AMSL

WELL DETAILS		DEPTH (FEET)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
CEMENT	2" SS CASING	-- 0--	SM	SAND WITH SILT - fine- to fine-grained, well sorted, subrounded, light gray and frosted, trace surface loam, very dry. Eolian origin		
		4--	SW	SAND - Sand, 100% fine- to medium-grained, well sorted, subangular to subrounded, light to dark brown and clear to frosted. Quartz mica, feldspar, hornblende or basalt. Semi-dry.		
BEN-TONITE SLURRY		-- 10--	SW	SAND - Sand, 100%, fine- to medium-grained, well to moderately well sorted, subangular to subrounded, light olive brown and clear to frosted. Semi-dry. Hard cemented sand layer 19-20'.	85310396 JA544 MJA210	Soil Composite
		20--	SW	SAND - Sand, 100%, fine- to medium-grained, well to moderately well sorted, pale to dark yellowish brown. Feldspar, hornblende mica. Semi-dry.		
					85310397 JA545 MJA211	Soil Composite
		35--	SW	SAND - Sand, 100%, fine- top very fine-grained clear to light olive gray. Trace silt, trace pebbles (3-10mm) scattered throughout.		
		40--	SW	SAND - Sand, 100%, medium- to fine-grained, moderately well to well sorted, subrounded to subangular, frosted and dark yellowish brown. Trace pebbles. Quartz mica, hornblende or basalt, feldspar.		
FINE SAND CAP		-- 46				
GRAVEL		-- 49				
		-- 50--				

Project: Resource Recovery Job No: R10-8410-14 Boring No: EE-1

WELL DETAILS	DEPTH (FEET)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
	50	SP	SAND - Sand, 100%, medium- to coarse-grained, poorly sorted, angular, frosted to moderate olive brown, moist.		
2" SS CASING	55	SP	GRAVELLY SAND - Sand, 70%, medium- to very coarse-grained, poorly sorted, subrounded, dark gray to black and frosted, some mica, moist.		
	60	SW	SAND - Sand, 100%, medium- to coarse-grained, dark olive brown to dark gray.		
GRAVEL PACK	66	GP	SANDY GRAVEL - Gravel, 60%, coarse-grained, poorly sorted, subrounded, gray to black. Sand, 40%, medium- to very coarse-grained, poorly sorted, subrounded, dark gray to black, frosted. Feldspar, mica, quartz. Large cobbles in lower part.		
2" SS .010 SLOT SCREEN				85320877 JA554 MJA221	Aqueous Grab
2" SS SUMP	86				
	88		TOTAL DEPTH - 88 ft.		

ecology and environment, inc. DRILLING AND SAMPLE LOG Sheet 1 of 2

Project: Resource Recovery
Boring Contr.: Boyles Bros.
Boring Method: Hollow Stem Auger
Logged by: R. Holtz
Date Completed: 8/02/85

Job No: TDD R10-8410-14
Boring No: EE-2
Location: 30' SE of Area A
Surface Elev: 416.8 ft. Datum: AMSL
Casing Elev: 419.2 ft. Datum: AMSL
Total Depth: 88 ft. Datum: Below TOC
Groundwater: 348.8 ft. AMSL

WELL DETAILS		DEPTH (FEET)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
CEMENT	2" SS CASING	0	SM	SILTY SAND - Sand, 80%, fine-grained, well sorted, subrounded, light gray, and frosted.		
		2	SM	SILTY SAND - Sand, 80%, fine-grained, well sorted, subrounded, frosted and light to dark brown. Silt, 20%, light to dark brown, semi-dry. Micaceous flakes mixed in. Garbage hit at 2', 1' layer of cemented sand at 8'.		
BEN-TONITE		10	SW	SAND - Sand, 100%, fine-grained, well to moderately well sorted, subrounded, frosted and light to dark brown, semi-dry. Micaceous flakes intermixed. Garbage at 2', 1' layer of cemented sand at 8'.	85320882 JA546 MJA212	Soil Composite
		13	SW			
BEN-TONITE SLURRY					85320883 JA547 MJA213	Soil Composite
		40	SP	SAND - Sand, 100%, coarse- to medium-grained, poorly sorted, subrounded to subangular, frosted, and dusky brown to dark olive gray.		
			SP			
		50				

Project: Resource Recovery Job No: R10-8410-14 Boring No: EE-2

WELL DETAILS		DEPTH (FEET)	SYMBOL		LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
BEN-TONITE SLURRY	2" SS CASING	-- 50--					
FINE SAND		-- 60--		SP	GRAVELLY SAND. Gravel - poorly sorted, angular, mostly dark gray to black, some frosted. Water at 65'.		
				SP			
COARSE AND NATURAL SAND	2" SS 0.010 SLOT SCREEN	-- 66					
						85320885 JA572 MJA249	Aqueous grab
	2" SS SUMP	-- 86					
		-- 88--			BOTTOM OF BORING - 88 ft.		

Project: Resource Recovery	Job No: TDD R10-8410-14	Boring No: EE-3	
Boring Contr.: Boyles Bros.	Location: 30' West of Area A		
Boring Method: Hollow Stem Auger	Surface Elev: 415.1 ft.	Datum: AMSL	
Logged by: R. Hpltz	Casing Elev: 417.2 ft.	Datum: AMSL	
Date Completed: 8/04/85	Total Depth: 87 ft.	Datum: Below TOC	
	Groundwater: 353.1 ft.	AMSL	

WELL DETAILS		DEPTH (FEET)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
CEMENT		0	SM	SILTY SAND. Sand, 80%, fine-grained, well sorted, subrounded to subangular, light gray and opaque, mica granules. Silt, 20%, light gray, dry.		
		2	SM	SAND WITH SILT. Sand, 90%, fine-grained, well sorted, subangular to subrounded, frosted and light to dark brown. Silt, 10%, semi-dry, large anounts of garbage (wood, cans, plastic, etc.) from 3'-17'.		
BEN-TONITE PELLET		10	SW	SAND - Sand, 100%, fine- to medium-grained, moderately well sorted, subangular to angular, dusky yellowish brown and frosted, mica flakes, semi-dry.	85320875 JA560 MJA228	Soil Composite
		15				
BEN-TONITE SLURRY	2" SS CASING	17	SW	SAND - Sand, 100%, medium-grained, moderately well sorted, subangular to subrounded, dark olive brown. Trace fine pebbles (4-10mm) at 25' and 38'.		
					85320876 JA561 MJA229	Soil Composite
		40	SP	GRAVELLY SAND - poorly sorted, angular to sub-angular, dark gray, ano frosted, a salt and pepper appearance.		
		50				

Project: Resource Recovery Job No: R10-8410-14 Boring No: EE-3

WELL DETAILS		DEPTH (FEET)	SYMBOL		LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
BEN-TONITE SLURRY	2" SS CASING	-- 50--		SP	GRAVELLY SAND - Coarse, poorly sorted, sub-rounded to subangular, dark gray to black, and frosted. Gravel approximately 3mm size, small pebbles (10-15mm) at 57', flowing sands at 64'.		
FINE SAND		-- 59					
COARSE SAND AND NATURAL GRAVEL	2" SS 0.010 SLOT SCREEN	-- 64				85320881 JA573 MJA248	Aqueous grab
	2" SS SUMP	-- 85					
		-- 87--			TOTAL DEPTH - 87 ft.		

ecology end environment, inc. DRILLING AND SAMPLE LCG

Project: Resource Recovery
Job No: TOO R10-8410-14
Boring No: EE-4
Boring Contr,: Boyles Bros.
Location: 30' SE of Area B
Boring Method: Hollcw Stem Auger
Surface Elev: 397.6 ft. Datum: AMSL
Logged by: R. Holtz
Casing Elev: 396.4 ft. Datum: AMSL
Date Completed: 7/17/85
Total Depth: 72 ft. Datum: Below TOC
Groundwater: 353.4 ft. AMSL

WELL DETAILS		DEPTH (FEET)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
CEMENT	2" SS CASING	-- 0-	SM	SILTY SAND. Sand, 80%, very fine-grained, well sorted, subangular to subrounded, light gray, frosted, and clear. Very dry.		
		-- 2-	SW	SAND - Sand, 100%, fine- to medium-grained, moderately well sorted, subangular, frosted and dark yellowish brown. Feldspar, mica, hornblende, or basalt. Cemented sand 13'-14', increasingly coarser below 14'.	85290825 JA562 MJA231	Soil Composite
BEN-TONITE SLURRY		-- 18-	SP	SAND - Sand, 100%, coarse, poorly sorted, subangular, medium olive gray, frosted, trace gravel and 5-8mm pebbles.		
		20-	SP	SAND WITH GRAVEL. Sand, 90%, medium- to coarse-grained, moderately poorly to poorly sorted, angular to subangular, dark yellowish brown and frosted. Gravel, 10%, coarse-grained, dark gray or black. Gravel found between 26'-30'.	85290826 JA563 MJA230	Soil Composite
		30-	GP	SANDY GRAVEL - moderately poorly to poorly sorted, angular to subrounded, semi-dry, light to moderate brown, and frosted. Gravel found between 26'-30'.		
		35-	SP	GRAVELLY SAND. Sand - poorly sorted, angular to subangular, olive gray to dark gray, and frosted. Gravel - coarse, subangular, olive gray to dark gray.		
FINE SAND		-- 43				
		45-		GRAVEL - Gravel, 100%, coarse to very coarse, poorly sorted, flowing, dark gray to black and frosted. Trace sand. Trace pebbles and small cobbles at 60'.		
COARSE SAND & NATURAL GRAVEL	2" SS 0.010 SLOT SCREEN	-- 46	GP			
		-- 50-				

Project: Resource Recovery Job No: R10-8410-14 Boring No: EE-4

WELL DETAILS		DEPTH (FEET)	SYMBOL		LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
		-- 50--		GP	GRAVEL - cont'd		
COARSE SAND & NATURAL GRAVEL	2" SS 0.010 SLOT SCREEN						
		-- 70				85281029 JA569 MJA234	Aqueous grab
	2" SS SUMP	-- 72--			TOTAL DEPTH - 72 ft.		

ecology and environment, inc. DRILLING AND SAMPLE LOG

Project:	Resource Recovery	Job No: TDD R10-8410-14	Boring No: EE-5
Boring Contr.:	Boyles Bros.	Location: 30' West of Area B	
Boring Method:	Hollow Stem Auger	Surface Elev: 405.5 ft.	Datum: AMSL
Logged by:	R. Holtz	Casing Elev: 407.9 ft.	Datum: AMSL
Date Completed:	7/20/85	Total Depth: 72 ft.	Datum: Below TOC
		Groundwater: 350.9 ft.	AMSL

WELL DETAILS		DEPTH (FEET)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
CEMENT	2" SS CASING	0	SM	SILTY SAND. Sand - 80%, very fine-grained, well sorted, light to medium gray, clear, and frosted. Silt - 20%, light to medium gray, some surface loam.		
		2	SW	SAND - Sand, 100%, very fine- to medium-grained, well to moderately well sorted, sub-rounded to subangular, frosted and light to dark brown.		
		10	SW	SAND - Sand, 100%, fine- to coarse-grained, well to moderately well sorted, subrounded to angular, frosty and clear, also dark olive brown, semi-dry.	85290827 JA565 MJA232	Soil Composite
BEN-TONITE		12.5				
BEN-TONITE SLURRY		14				
		20	SP	SAND - Sand, 100%, fine- to coarse-grained, poorly to moderately poorly sorted, subangular, dark olive gray, becomes coarser and olive gray below 35'. Granules and small pebbles (6-16mm) at 38', semi-dry.	85290828 JA566 MJA233	Soil Composite
FINE SAND		40	GP	GRAVEL - Gravel, 100%, coarse, poorly sorted, angular to subangular, dark gray to black, and frosted.		
COARSE SAND AND NATURAL PACK		42				
		50				

Project: Resource Recovery Job No: R10-8410-14 Boring No: EE-5

WELL DETAILS		DEPTH (FEET)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
		-- 50--	GP	SAND AND GRAVEL - coarse to very coarse, angular to subangular, dark gray to black, and frosted.		
COARSE SAND AND GRAVEL PACK	2" SS 0.010 SLOT SCREEN	57--	GP	GRAVEL WITH SAND. Gravel - 90%, very coarse, poorly sorted, angular. Sand, 10%, coarse-grained, subrounded. Trace pebbles and cobbles. Saturated.		
		-- 69				
	2" SS SUMP				85281030 JA570 MJA238 (MJA235)	Aqueous grab
		-- 72				
		-- 75		TOTAL DEPTH - 75 ft.		

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Project: Resource Recovery
Boring Contr.: Boyles Bros.
Boring Method: Hollow Stem Auger
Logged by: Randy Holtz/Jim Braddock
Date Completed: 7/31/85

Job No: TDD R10-8410-14 Boring No: EE-6
Location: 30' Southwest of Area C-D
Surface Elev: 424.9 ft. Datum: AMSL
Casing Elev: 427.0 ft. Datum: AMSL
Total Depth: 102 ft. Datum: Below TOC
Groundwater: 352.4 ft. AMSL

WELL DETAILS		DEPTH (FEET)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
CEMENT		-- 0--	SM	SILTY SAND - Well sorted, light to medium gray, frosted, and transparent. Mostly quartz, dry.		
		2--	SW	SAND with SILT. Sand, fine- to very fine-grained, well sorted, light to medium brown. Most silt found 2'-5'.		
		10--	SW	SAND - Sand, 100%, fine- to coarse-grained, well to moderately well sorted, subrounded to subangular, frosted, to dark yellowish to olive brown; occasional layers, 4-6 mm pebbles in lower part.	85290827 JA565 MJA232	Soil Composite
BEN-TONITE		-- 12				
BEN-TONITE	2" SS CASING	--14				
					85310395 JA553 MJA219	Soil Composite
		40--	SP	SAND - Sand, 100%, coarse- to medium-grained, moderately poorly to poorly sorted, subangular to angular, frosted to dark olive gray; moist.		
		-- 50--				

ecology and environment, inc. DRILLING AND SAMPLE LOG

Project: Resource Recovery Job No: R10-8410-14 Boring No: EE6

WELL DETAILS		DEPTH (FEET)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
BEN-TONITE SLURRY	2"SS CASING	50	GC	SANDY GRAVEL with CLAY - Gravel, coarse to very coarse, subangular, dark gray to black. Sand, coarse, poorly sorted, subangular to subrounded, frosted and dark olive gray. Clay, silty clay in occasional seams, small granules and pebbles at 58'.		
		57	SP	GRAVELLY SAND with PEBBLES - Sand, coarse-grained, poorly sorted, subangular to angular dark gray to black, and frosted. Pebbles - 10-20mm.		
FINE SAND		70				
		72				
COARSE SAND AND GRAVEL TO 102'		75	GP	GRAVEL with SAND - Sand, very coarse-grained, very poorly sorted, angular, dark gray to black, and frosted, salt and pepper appearance.		
	2"SS 0.010 SLOT SCREEN	80				
		100			85320878	Aqueous grab
	2" SS SUMP	102		TOTAL DEPTH - 102 ft.	JA575 MJA227	

ecology and environment, inc. DRILLING AND SAMPLE LOG

Project: Resource Recovery
Job No: TDD R10-8410-14
Boring No: EE-7
Boring Contr.: Boyles Bros.
Location: 30' West of Area C
Boring Method: Hollow Stem Auger
Surface Elev: 423.8 ft. Datum: AMSL
Logged by: Randy Holtz/Jim Braddock
Casing Elev: 425.6 ft. Datum: AMSL
Date Completed: 7/29/85
Total Depth: 100 ft. Datum: Below TOC
Groundwater: 351.9 ft. AMSL

WELL DETAILS		DEPTH (FEET)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
CEMENT		0	SM	SILTY SAND - Sand, well sorted, subrounded, light gray, frosted and clear; surficial loam and debris present.		
		2	SM	SILTY SAND - Sand, fine- to very fine-grained, well to moderately well sorted, subangular, light to medium brown, and frosted. Fill material (old car parts, glass, wood, etc.) between 6'-9'.		
BEN-TONITE		10				
		11	SW	SAND - Sand, 100%, fine- to medium-grained, moderately well sorted, subangular to sub-rounded, mostly frosted quartz, some dark to moderate olive brown, 1-2mm granules at 14', micaeous flakes at 16'.	85310392 JA557 MJA224	Soil Composite
BEN-TONITE SLURRY	2" SS CASING	20	SW	SAND - Sand, 100%, medium- to fine-grained, moderately well sorted, subangular to sub-rounded. Mostly frosted, some dark to moderate olive brown.		
					85310393 JA558 MJA225	Soil Composite
		40	GP	SANDY GRAVEL - Sand, medium- to coarse-grained, poorly sorted, subangular to subrounded, cloudy, and grayish olive brown.		
		50				

ecology and environment, inc. DRILLING AND SAMPLE LOG Sheet 2 of 2

Project: Resource Recovery Job No: R10-8410-14 Boring No: EE-7

WELL DETAILS		DEPTH (FEET)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
BEN-TONITE SLURRY	2" SS CASING	-- 50--	GP	SANDY GRAVEL (continued)		
FINE SAND		-- 70--	SP	GRAVELLY SAND - Sand, poorly sorted, subangular to subrounded, dark gray to black, and frosted quartz. Salt and pepper appearance. Pebbles and cobbles at 66', flowing sands at 76'.		
		-- 72--				
COARSE SAND AND NATURAL GRAVEL		-- 78				
	2" SS 0.010 SLOT SCREEN					
		-- 98			85320879 JA576 MJA237	Aqueous grab
	2" SS SUMP	--100--		TOTAL DEPTH - 100 ft.		

ecology and environment, inc.   DRILLING AND SAMPLE LOG   Sheet 1 of 2

Project:	Resource Recovery	Job No:	TDD R10-8410-14
		Boring No:	EE-8
Boring Contr.:	Boyles Bros.	Location:	30' Southeast of Area E
Boring Method:	Hollow Stem Auger	Surface Elev:	426.5 ft.
		Datum:	AMSL
Logged by:	Randy Holtz/Jim Braddock	Casing Elev:	428.4 ft.
		Datum:	AMSL
Date Completed:	7/23/85	Total Depth:	100 ft.
		Datum:	Below TOC
		Groundwater:	351.8 ft. AMSL

WELL DETAILS		DEPTH (FEET)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
CEMENT	2" SS CASING	0	SM	SILTY SAND - Sand, very fine-grained, well sorted, light to medium gray, and frosted. Dry, mica flakes, some surficial loam mixed in.		
		2	SW	SAND with SILT. Sand - fine-grained, well to moderately well sorted, subrounded to subrounded to subangular, frosted and moderate olive brown. Small pebbles at 7'.		
		10	SW	SAND - Sand, 100%, fine- to medium-grained, well to moderately well sorted, subangular to subrounded, frosted to moderate olive brown. Becomes more coarse below 18'.	85300850 JA548 MJA214	Soil Composite
BENTONITE		13				
BENTONITE SLURRY		15				
		20	SW	SAND - Sand, 100%, fine- to medium-grained, well to moderately well sorted, angular to subangular, frosted to olive brown. Occasional 1'-2' lenses of cemented sand; small pebble layers at 35', 47' and 50'. Becomes coarser at 49'.		
					85300851 JA549 MJA215	Soil Composite
		50				

Project: Resource Recovery Job No: R10-8410-14 Boring No: EE-8

WELL DETAILS		DEPTH (FEET)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
BEN-TONITE SLURRY		-- 50--	GP	SANDY GRAVEL - Gravel, poorly sorted, subangular td subrounded, dark grayish brown to black frosted. Pebbles (10-20mm) at 54'.		
FINE SAND		-- 54				
COARSE SAND	2" SS CASING	-- 57				
		70--	SP	GRAVELLY SAND - Sand, poorly sorted, subangular to angular gravel and subrounded sand, dusky yellowish brown to grayish black.		
	2" SS 0.010 SLOT SCREEN	-- 78				
	2" SS SUMP	-- 98			85310391 JA574 MJA223	Aqueous grab
		--100--		TOTAL DEPTH - 100 ft.		

Project: Resource Recovery
Boring Contr.: Boyles Bros.
Boring Method: Hollow Stem Auger
Logged by: Randy Holtz/Jim Braddock
Date Completed: 7/25/85

Job No: TDD R10-8410-14 Boring No: EE-9
Location: 30' Southeast of Area E
Surface Elev: 426.2 ft. Datum: AMSL
Casing Elev: 424.8 ft. Datum: AMSL
Total Depth: 97 ft. Datum: Below TOC
Groundwater: 352.7 ft. AMSL

WELL DETAILS		DEPTH (FEET)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
CEMENT		0	SM	SILTY SAND - Sand, fine- to very fine-grained, well sorted, subrounded to subangular, light to medium gray, clear and frosted.		
		2	SW	SAND - Sand, 100%, fine- to medium-grained, well to moderately well sorted, subangular to angular, light to dark brown. Large pebbles and fill material 8'-10'.		
BEN-TONITE PELLET		10	SW	SAND - Sand, 100%, fine- to medium-grained, moderately well to well sorted, subangular to subrounded, mostly frosted, also dark to moderate olive brown. Large mica flakes; pebbles (4-10mm) at 18'. Occasional cemented sand.	85300852 JA550 MJA216	Soil Composite
		12				
BEN-TONITE SLURRY	2" SS CASING					
		30	SP	SAND - Sand, 100%, medium-grained, poorly sorted, frosted to moderate olive brown. Extensive cemented sand at 35' and 44'.	85310853 JA551 MJA217	Soil Composite
		50				

Project: Resource Recovery Job No: R10-8410-14 Boring No: EE-9

WELL DETAILS		DEPTH (FEET)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE
BENTONITE SLURRY		50	SP	SAND with GRAVEL - Sand, coarse-grained, poorly sorted, subrounded, dark gray and frosted; gravel, very well sorted, subrounded. Small pebbles (5-8mm) at 55', becomes coarser below 58'.		
FINE SAND		52				
COARSE SAND AND NATURAL GRAVEL	2" SS CASING	54				
		61	GP	SANDY GRAVEL - Gravel, poorly sorted, subangular, dark gray to black, frosted.		
		63	SP	GRAVELLY SAND - Sand, poorly sorted, angular, dark gray to black, saturated. Gravel - very well sorted. Cobbles and pebbles 85'-100'.		
		70	SP	GRAVELLY SAND - Sand, poorly sorted, subangular to angular gravel and subrounded sand, dusky yellowish brown to grayish black.		
	2" SS 0.010 SLOT SCREEN	75				
	2" SS SUMP	95				
		97		TOTAL DEPTH - 97 ft.	85310390 JA572 MJA222	Aqueous grab

ecology and environment, inc.

DRILLING
WEEKLY PROGRESS REPORT

Work Site: Resource Recovery Corp. E & E Job No.: TDDF R-20-8410-14 ~~Week~~ Ending: 8/6/85

Driller: W. Franklin Driller's Helper: K. Jones/A. Aronson Geologist: R. Holtz

Number of Drill Holes Drilled and Completed: 11 days = 951 feet Average Feet/Day: 86.4/day

Drill Hole Information:

1. Hole Designation: EE-1-A Total Depth: 23' Static Water Level: N/A

   How Hole was Drilled and Equipment Used: Mobile B-80 rig with 4" hollow stem augers.

   Was Hole Cased? N Type and Amount of Casing Used: N/A Screened Interval: N/A

   7/16/85 Type and Size of Well Screen: Johnson Stainless Steel .01 slot size

   Amount of Sand, Gravel or Cement Used: N/A

   Was Hole Developed? No

   Problems Encountered: Large cobbles and boulders encountered causing augers to bind. Hole was abandoned.

2. Hole Designation: EE-1-B Total Depth: 43' Static Water Level: N/A

   How Hole was Drilled and Equipment Used: Mobile B-80 rig with 4" hollow stem augers.

   Was Hole Cased? N Type and Amount of Casing Used: N/A Screened Interval: N/A

   Type and Size of Well Screen: Johnson Stainless Steel .01 slot size.

   7/16/85 Amount of Sand, Gravel or Cement Used: N/A

   Was Hole Developed? No

   Problems Encountered: Large Cobles and boulders encountered, hole abandoned, move to Area B

3. Hole Designation: EE-4 Total Depth: 72' Static Water Level: 43.5'

   How Hole was Drilled and Equipment Used: Mobile B-80 rig with 4" hollow stem augers.

   Was Hole Cased? Y Type and Amount of Casing Used: S.S. 52' Screened Interval: 48-70'

   Type and Size of Well Screen: Johnson Stainless Steel .01 slot size

   7/17/85 Amount of Sand, Grevel or Cement Used: 30' coarse sand, fine 25' bentonite, 17 cement

   Was Hole Developed? Y, 30 gallons purged out on 7/21/85

   Problems Encountered: Flowing sands causing problems with installation of casing.

Randall S. Holtz 8/30/85
Signature/Date

*11 days actual drilling - other days spend decontamination

cc: V.P. Technical Services, Project Director, Project Manager, Project File 448025

ecology and environment, inc.

DRILLING
WEEKLY PROGRESS REPORT

Work Site: Resource Recovery Corp. E & E Job No.: R-20-8410-14 TDDF ~~Week~~ Ending: 8/6/85

Driller: W. Franklin Driller's Helper: K. Jones/A. Aronson Geologist: R. Holtz

Number of Drill Holes Drilled and Compleled: 11 days = 951' Average feet/Day: 86.4'/day

Drill Hole Information:

1. Holo Designation: EE-5-A Total Depth: 78' Static Water Level: 52.25'

How Hole was Drilled and Equipment Used: Mobile B-80 rig with 4" hollow stem augers.

Was Hole Cased? Y Type and Amount of Casing Used: S.S. 58' Screened Interval: 56.25'

7/19/85 Type and Size of Well Screen: Johnson Staioless Steel .01 slot size

Amount of Sand, Cravel or Cement Used: 30' coarse & fine sand. 2' bentonito nellets

Was Hole Developed? No

Problems Encountered: Sand had flowed up inside the augers and when nellets were introduced they seized the casing to the augers. Hole abandone.

2. Hole Designation: EE-5-B Total Depth: 72' Static Water Level: 51'

How Hole was Drilled and Equipment Used: Mobile B-80 rig with 4" hollow stem augers.

Was Hole Cased? Y Type and Amount of Casing Used: S.S. 52' Screened Interval: 50-72'

7/20/85 Type and Size of Well Screen: Johnson Stainless Steel .01 slot size.

Amount of Sand, Gravel or Cement Used: 32' coarse, find sand 28' bentonite 12' grout.

Was Hole Developed? Yes on 7/21 - 30 gallons purged out.

Problems Encountered: Flowing sands causing some minor problems with casing installation

3. Hole Designation: EE-8 Total Depth: 103' Static Water Level: 77.4'

How Hole was Drilled and Equipment Used: Mobile B-80 rig with 4" hollow stem augers.

7/23/85 Was Hole Cased? Y Type and Amount of Casing Used: S.S. 80' Screened Interval: 78-100'

Typo and Size of Well Screen: Johnson Stainless Stoel .01 slot size

Amount of Sand, Gravel or Cement Used: 50' sand (coarse, fine) 38' bentonite, 12' grout

Was Hole Developed? Yes. 24.8 gallons purged on 7/24/85.

Problems Encountered: Casing rose about 3' at beginning of auger withdrawl, but after sand pack was in, no more rose up.

[signature] 8/30/85
Signature/Date

cc: V.P. Technical Services, Project Director, Project Manager, Project File 448025

ecology and environment, inc.

DRILLING
WEEKLY PROGRESS REPORT

Work Site: Resource Recovery Corp. E & E Job No.: R-20-8410-14 Week Ending: 8/6/85

Driller: W. Franklin Driller's Helper: K. Jones/A. Aronson Geologist: R. Holtz

Number of Drill Holes Drilled and Completed: 11 days = 951 feot Average Feet/Day: 86.4/day

Drill Hole Information:

1. Hole Designation: EE-9 Total Depth: 97' Static Water Level: 75'

How Hole was Drilled and Equipment Used: Mobile B-80 rig with 4" hollow stem augers.

7/25/85 Was Hole Cased? Y Type and Amount of Casing Used: S.S. 75' Screened Interval: 75-97'

Type and Size of Well Screen: Johnson Stainless Steel .01 slot sizo

Amount of Sand, Gravel or Cement Used: 33' coarse & fine sand, 54' bontonite, 10' grout

Was Hole Developed? Yes. 24.5 gallons purgod on 7/30/85

Problems Encountered: Flowing sand causing some problems with casing installation.

2. Hole Designation: EE-7 Total Depth: 100' Static Water Level: 73.2'

How Hole was Drilled and Equipment Used: Mobile B-80 rig with 4" hollow stem augers.

Was Hole Cased? Y Type and Amount of Casing Used: S.S. 80' Screened Interval: 78-100'

7/29/85 Type and Size of Well Screen: Johnsoo Stainless Steel .01 slot size.

Amount of Sand, Gravel or Cement Used: 30' sand coarse & fine, 60' bentonite, 10' orout

Was Hole Developed? Yes. 30 galloos purged 7/30/85

Problems Encountered: Some dobris at beginning of hole but no major difficulties encluntered

3. Hole Designation: EE-6 Total Depth: 100' Static Water Level: 70.3

How Hole was Drilled and Equipment Used: Mobile B-80 rig with 4" hollow stem augers.

Was Hole Cased? Type and Amount of Casing Used: S.S. 80' Screened Interval: 77.5 to 99.5'

7/31/85 Type and Size of Well Screen: Johoson Stainless Steel .01 slot sizo

Amount of Sand, Gravel or Cement Used: 30' coarse and find sand, 58' bentonite, 12' grout

Was Hole Developed? Yes. 24.5 galloos purged on 8/2/85

Problems Encountered: Flowlng sands caused casing to be set at 99.5 instead of 102'.

[signature] 8/30/85
Signature/Date

cc: V.P. Technical Services, Project Director, Project Manager, Project File 448025

ecology and environment, inc.

DRILLING
WEEKLY PROGRESS REPORT

Work Site: Resource Recovery Corp. E & E Job No.: TDD: R-20-8410-14 ~~Week~~ Ending: 8/6/85

Driller: W. Franklin Driller's Helper: K. Jones/A. Aronson Geologist: R. Holtz

Number of Drill Holes Drilled and Completed: 11 days = 951 feet Average Feet/Day: 86.4/day

Drill Hole Information:

1. Hole Designation: EE-1 Total Depth: 88' Static Water Level: 59.2'
   How Hole was Drilled and Equipment Used: Mobile B-80 rig with 4" hollow stem augers.

8/2/85

   Was Hole Cased? Y Type and Amount of Casing Used: S.S. 69' Screened Interval: 66-88'
   Type and Size of Well Screen: Johnson Stainless Steel .01 slot size
   Amount of Sand, Gravel or Cement Used: 43' sand (coarse & fine), 35' bentonite, 10' grout
   Was Hole Developed? Yes. 28 gallons purged on 8/3/85
   Problems Encountered: No probelms at all

2. Hole Designation: EE-3 Total Depth: 87' Static Water Level: 62'
   How Hole was Drilled and Equipment Used: Mobile B-80 rig with 4" hollow stem augers.

8/4/85

   Was Hole Cased? Y Type and Amount of Casing Used: S.S. 67' Screened Interval: 65-87'
   Type and Size of Well Screen: Johnson Stainless Steel .01 slot size.
   Amount of Sand, Gravel or Cement Used: 27' coarse & fine sand. 48' bentonite, 12' grout
   Was Hole Developed? Yes. 28 gallons purged out on 8/6/85
   Problems Encountered: High Hnu readings caused us to wear PAPRs throughout the entire hole.

3. Hole Designation: EE-2 Total Depth: 86' Static Water Level: 68.5'
   How Hole was Drilled and Equipment Used: Mobile B-80 rig with 4" hollow stem augers.

8/6/85

   Was Hole Cased? Y Type and Amount of Casing Used: 66' Screened Interval: 64-86'
   Type and Size of Well Screen: Johnson Stainless Steel .01 slot size
   Amount of Sand, Gravel or Cement Used: 26' sand (coarse & fine) 50' bentonite, 10' grout
   Was Hole Developed? Yes. 28.2 gallons purged on 8/6/85
   Problems Encountered: No problems at all.

Randall S. Holtz 8/30/85
Signature/Date

cc: V.P. Technical Services, Project Director, Project Manager, Project File 848025

APPENDIX C

SAMPLE DOCUMENTATION SUMMARY

SItE NAME: RESOURCE RECOVERY
CASE NO. 4679

TOO NO. : R10-8410-14
PROJECT CODE: TCE-2394
ACCOUNT NO. : TGB-IO-PUZZ

Location Number (RRC-)	Sample Number	Date/Time Collected	Matrix/Grab or Composite	Detection Limit	Federal Express Air Bill Number	Date/Time Shipped	Sample Containers	Destination/ Analysis	Remarks
W1	85281002	7/10/85	Aqueous Grab	0.2 ppb	463973090	7/10/85 1600	2 1-liter amber	EPA Lab/Pesticides	Lot #85172222
W1	JA536	7/10/85	Aqueous Grab	Varies	463973086	7/10/85 1600	2 40-ml vials 4 1-liter amber	Rock Mountain/ Organic	Vial Lot #24292122 Amber Lot #85172222
W1	MJA203	7/10/85	Aqueous Grab	Varies	463973016	7/10/85 1600	1 1-liter poly	California Analytical/ Inorganic	Lot #35157312
W2	85281003	7/10/85	Same	0.2 ppb	463973090	7/10/85 1600	2 1-liter amber	EPA Lab/Pesticides	Lot #85172222
W2	JA538	7/10/85	Same	Varies	463973086	7/10/85 1600	2 40-ml vials 4 1-liter amber	Rocky Mountain/ Organic	Vial Lot #24292122 Amber Lot #85172222
W2	MJA205	7/10/85	Same	Varies	463973042	7/10/85 1600	1 1-liter poly	California Analytical/ Inorganic	Lot #35157312
W3	85281001	7/09/85	Same	0.2 ppb	463973101	7/09/85 1600	2 1-liter amber	EPA Lab/Pesticides	Lot #85172222
W3	JA533	7/09/85	Same	Varies	463973123	7/09/85 1600	2 40-ml vials 4 1-liter amber	Rocky Mountain/ Organic	Vial Lot #24292122 Amber Lot #85172222
W3	MJA202	7/09/85	Same	Varies	463973112	7/09/85 1600	1 1-liter poly	California Analytical/ Inorganic	Lot #35157312
W4	85281004	7/11/85	Aqueous Grab	0.2 ppb	463973031	7/11/85 1600	2 1-liter amber	EPA Lab/Pesticides	Lot #85172222
W4	JA539	7/11/85	Aqueous Grab	Varies	463973042	7/11/05 1600	2 40-ml vials 4 1-liter amber	Rocky Mountain/ Organic	Vial Lot #24292122 Amber Lot #85172222
W4	MJA206	7/11/85	Aqueous Grab	Varies	463973053	7/11/85 1600	1 1-liter poly	California Analytical/ Inorganic	Lot #35157312

SITE NAME: RESOURCE RECOVERY
CASE NO. 4679

TOD NO. : R1G-8410-14
PROJECT CODE: TCE-2394
ACCOUNT NO. : TGB-10-PUZZ

Location Number (RRC-)	Sample Number	Date/Time Collected	Matrix/Grab or Composite	Detection Limit	Federal Express Air Bill Number	Date/Time Shipped	Sample Containers	Destination/ Analysis	Remarks
W5	85281005	7/11/85 1155	Aqueous Grab	0.2 ppb	463973031	7/11/85 1600	2 1-liter amber	EPA Lab/Pesticides	Lot #85172222
W5	JA540	7/11/85 1155	Same	Varies	463973042	7/11/85 1600	2 40-ml vials 4 1-liter amber	Rocky Mountain/ Organic	Vial Lot #24292122 Amber Lot #85172222
W5	MJA207	7/11/85 1155	Same	Varies	463973053	7/11/85 1600	1 1-liter poly	California Analytical Inorganic	Lot #35157312
DWW	85281006	7/11/85 1116	Same	0.2 ppb	463973031	7/11/85 1600	2 1-liter amber	EPA Lab/Pesticides	Lot #85172222
DWW	JA541	7/11/85 1166	Same	Varies	463973042	7/11/85 1600	2 40-ml vials 4 1-liter amber	Rocky Mountain/ Organic	Vial Lot #24292122 Amber Lot #85172222
DWW	MJA208	7/11/85 1116	Same	Varies	463973053	7/11/85 1600	1 1-liter poly	California Analytical Inorganic	Lot #35157312
BRS-01	85281000	7/09/85 0800	Same	0.2 ppb	463973101	7/09/85 1600	2 1-liter amber	EPA Lab/Pesticides	Lol #85172222
BRS-01	JA534	7/09/85 0800	Same	Varies	463973123	7/09/85 1600	2 40-ml vials 4 1-liter amber	Rocky Mountain/ Organic	Vial Lot #24292122 Amber Lot #85172222
BRS-01	MJA201	7/09/85 0800	Same	Varies	463973112	7/09/85 1600	1 1-liter poly	California Analytical/ Inorganic	Lot #35157312
TP-01	JA534	7/09/85 0845	Aqueous	Varies	46373123	7/09/85 1600	2 40-ml vials	Rocky Mountain/ VOA	Lot #24292122
TP-02	JA537	7/10/85 1425	Aqueous	Varies	463973086	7/10/85 1600	2 40-ml vials	Rocky Mountain/ VOA	Lot #24292122
TP-03	JA542	7/11/85 1430	Aqueous	Varies	463973042	7/11/85 1600	2 40-ml vials	Rocky Mountain/ VOA	Lot #24292122

SITE NAME: RESOURCE RECOVERY
CASE NO. 4768

TDD NO. : R10-8410-14
PROJECT CODE: TCE-2394
ACCOUNT NO. : TGB-10-PUZZ

Location Number (RRC-)	Sample Number	Date/Time Collected	Matrix/Grab or Composite	Detection Limit	Federal Express Air Bill Number	Date/Time Shipped	Sample Containers	Destination/ Analysis	Remarks
TP-04	JA578	7/22/85 1350	Aqueous	Varies	129006684	7/22/85 1600	2 40-ml vials	Rocky Mountain/ VOA	Lot #24292122
TP-05	JA568	8/01/85 1400	Aqueous	Varies	129006754	8/01/85 1600	2 40-ml vials	A.T.I./VOA	Lot #24292122
TP-06	JA338	8/05/85 1400	Aqueous	Varies	129006625	8/05/85 1530	2 40-ml vials	Rocky Mountain/ VOA	Lot #24292122
TP-07	JA302	8/07/85 0900	Aqueous	Varies	155009260	8/07/85 1500	2 40-ml vials	A.T.I./VOA	Lot #24292122
Auger Rinsate	85320884	8/07/85 1230	Aqueous	0.2 ppb	463973974	8/07/85 1500	2 1-liter amber	EPA Lab/Pesticides	Lot #85175162
Auger Rinsate	JA303	8/07/85 1230	Aqueous	Varies	155009260	8/07/85 1500	4 1-liter amber 2 40-ml vials	A.T.I./Organic	Vial Lot #24292122 Amber Lot #85175162
Auger Rinsate	MJA236	8/07/85 1230	Aqueous	Varies	463973020	8/07/85 1500	1 1-liter poly	California Analytical/ Inorganic	Lot #35157312
Transfer Blank for lot #05175102	85320880	8/07/85 0900	Aqueous	0.2 ppb	463973974	8/07/85 1500	2 1-liter amber	EPA Lab/Pesticides	Lot #85175162
Transfer Blank	JA301	8/07/85 1300	Aqueous	Varies	155009260	8/07/85 1500	4 1-liter amber	A.T.I./Organics	Lot #85175162
EE-1	85320877	8/05/85 1040	Aqueous Grab	0.2 ppb	129006636	8/05/05 1530	2 1-liter amber	EPA Lab/Pesticides	Lot #85172222
EE-1	JA554	8/05/85 1040	Aqueous Grab	Varies	129006625	8/05/85 1530	2 40-ml vials 4 1-liter amber	A.T.I./Organics	Vial Lot #25292122
EE-1	MJA221	8/05/85 1040	Aqueous Grab	Varies	129006640	8/05/85 1530	1 1-liter poly	California Analytical/ Inorganics	Lot #35157312

SITE NAME: RESOURCE RECOVERY
CASE NO. 4768

TDD NO. : R10-8410-14
PROJECT CODE: TCE-2394
ACCOUNT NO. : TCB-10-PUZZ

Location Number (RRC-)	Sample Number	Date/Time Collected	Matrix/Grab or Composite	Detection Limit	Federal Express Air Bill Number	Date/Time Shipped	Sample Containers	Destination/ Analysis	Remarks
EE-2	85320885	8/07/85 0930	Aqueous Grab	0.2 ppb	463973974	8/07/85 1500	2 1-liter amber	EPA Lab/Pesticides	
EE-2	JA572	8/07/85 0930	Aqueous Grab	Varies	155009260	8/07/85 1500	2 40-ml vials 4 1-liter amber	A.T.I./Organics	Vial Lot #24292122 Lot #85172222
EE-2	MJA249	8/07/85 0930	Aqueous Grab	Varies	463973020	8/07/05 1500	1 1-liter poly	California Analytical/ Inorganics	Lot #35157312
EE-3	85320881	0/07/85 1000	Aqueous Grab	0.2 ppb	85320881	0/07/05 1500	2 1-liter amber	EPA Lab/Pesticides	Lot #85172222
EE-3	JA573	8/07/85 1000	Aqueous Grab	Varies	155009260	8/07/85 1500	2 40-ml vials 4 1-liter amber	A.T.I./Organics	Vial Lot #24292122 Amber Lot #05172222
EE-3	MJA240	8/07/85 1000	Aqueous Grab	Varies	463973020	8/07/85 1500	1 1-liter poly	California Analytical/ Inorganics	Lot #35157312
EE-4	85281029	7/22/85 1415	Aqueous Grab	0.2 ppb	129006732	7/22/85 1600	2 1-liter amber	EPA Lab/Pesticides	Lot #05172222
EE-4	JA569	7/22/05 1415	Aqueous Grab	Varies	129006684	7/22/85 1600	2 40-ml vials 4 1-liter amber	A.T.I./Organics	Vial Lot #24292122 Amber Lot #85172222
EE-4	MJA234	7/22/05 1415	Aqueous Grab	Varies	129006743	7/22/05 1600	1 1-liter poly	California Analytical/ Inorganics	Lot #35157312
EE-5	05281030	7/22/85 1500	Aqueous Grab	0.2 ppb	129006732	7/22/85 1600	2 1-liter amber	EPA Lab/Pesticides	Lot #05172222
EE-5	JA570	7/22/05 1500	Aqueous Grab	Varies	129006684	7/22/85 1600	2 40-ml vials 4 1-liter amber	A.T.I./Organics	Vial Lot #24292122 Amber Lot #85172222
EE-5	MJA238 (MJA235)	7/22/85 1500	Aqueous Grab	Varies	129006743	7/22/85 1600	1 1-liter poly	California Analytical/ Inorganics	Lot #35157312

SITE NAME: RESOURCE RECOVERY
CASE NO. 4768

TDD NO. : R10-8410-14
PROJECT CODE: TCE-2394
ACCOUNT NO. : TGB-10-PUZZ

Location Number (RRC-)	Sample Number	Date/Time Collected	Matrix/Grab or Composite	Detection Limit	Federal Express Air Bill Number	Date/Time Shipped	Sample Containers	Destination/ Analysis	Remarks
EE-6	85320870	8/05/85 0930	Aqueous Grab	0.2 ppb	129006636	8/05/85 1530	2 1-llter amber	EPA Lab/Pesticides	Lot #85172222
EE-6	JA575	8/05/85 0930	Aqueous Grab	Varies	129006625	8/05/85 1530	2 40-ml vials 4 1-llter amber	A.I.I./Organics	Vial Lot #24292122 Amber Lot #85172222
EE-6	MJA227	8/05/85 0930	Aqueous Grab	Varies	129006640	8/05/85 1530	1 1-liter poly	California Analytical/ Inorganics	Lot #35157312
EE-7	05320079	0/05/85 0030	Same	0.2 ppb	129006636	0/05/85 1530	2 1-liter amber	EPA Lab/Pesticides	Lot #05172222
EE-7	JA576	8/05/85 0830	Same	Varies	129006625	8/05/85 1530	2 40-ml vials 4 1-liter amber	A.I.I./Organics	Vial Lot #24292122 Amber Lot #85172222
EE-7	MJA237	8/05/85 0830	Same	Varies	129006640	8/05/85 1530	1 1-liter poly	California Analytical/ Inorganics	Lot #35157312
EE-8	05310391	8/01/05 1130	Same	0.2 ppb	129006695	0/01/05 1600	2 1-liter amber	EPA Lab/Pesticides	Lot #85172222
EE-0	JA574	8/01/85 1130	Same	Varies	129006754	8/01/85 1600	2 40-ml vials	EPA Lab/Pesticides ?	Vial Lot #24292122
EE-0	MJA223	0/01/05 1130	Same	Varies	129006706	8/01/85 1600	1 1-liter poly	California Analytical/ Inorganics	Lot #35157312
EE-9	05310390	0/01/85 1400	Aqueous Grab	0.2 ppb	129006695	0/01/05 1600	2 1-liter amber	EPA Lab/Pesticides	Lot #05172222
EE-9	JA571	0/01/05 1400	Aqueous Grab	Varies	129006754	0/01/05 1600	2 40-ml vials 4 1-liter amber	A.I.I./Organics	Vial Lot #24292122 Amber Lot #85172222
EE-9	MJA222	8/01/85 1400	Aqueous Grab	Varies	129006706	8/01/85 1600	1 1-liter poly	California Analytical/ Inorganics	Lot #35157312

SITE NAME: RESOURCE RECOVERY
CASE NO. 4768

TDD NO. : R10-8410-14
PROJECT CODE: TCE-2394
ACCOUNT NO. : TGB-10-PUZZ

Location Number (RRC-)	Sample Number	Date/Time Collected	Matrix/Grab or Composite	Detection Limit	Federal Express Air Bill Number	Date/Time Shipped	Sample Containers	Destination/ Analysis	Remarks
EE-1 10-30 ft.	85310396	8/02/85 0810	Soil Composite	0.2 ppb	129006603	8/02/85 1600	8 oz. glass jar	EPA Lab/Pesticides	
EE-1 10-30 ft.	JA544	8/02/85 0810	Soil Composite	Varies	12900651	0/05/85 1600	8 oz. glass jar	EAL/Organics	
EE-1 10-30 ft.	MJA210	8/02/85 0810	Soil Composlie	Varies	129006640	8/05/85 1530	8 oz. glass jar	California Analytical/ Inorganics	
EE-1 30-gw	85310397	8/02/85 1030	Soil Composite	0.2 ppb	129006603	8/02/85 1600	8 oz. glass jar	EPA Lab/Pesticides	
EE-1 30-gw	JA545	8/02/05 1030	Soil Composite	Varies	129006651	8/05/85 1530	8 oz. glass jar	EAL/Organics	
EE-1 30-gw	MJA211	8/02/85 1030	Soil Composite	Varies	129006640	8/05/85 1530	8 oz. glass jar	California Analytical/ Inorganics	
EE-2 10-30 ft.	85320882	8/06/05 0000	Soil Composite	0.2 ppb	463973974	8/07/85 1500	0 oz. glass jar	EPA Lab/Pesticides	
EE-2 10-30 ft.	JA546	0/06/05 0800	Soil Composite	Varies	155009271	8/07/05 1500	8 oz. glass jar	EAL/Organics	
EE-2 10-30 ft.	MJA212	8/06/85 0800	Soil Composite	Varies	463973020	0/07/85 1500	8 oz. glass jar	California Analytical/ Inorganics	
EE-2 30-gw	85320003	8/06/85 1015	Soil Composite	0.2 ppb	463973974	0/07/05 1500	8 oz. glass jar	EPA Lab/Pesticides	
EE-2 30-gw	JA547	8/06/85 1015	Soil Composite	Varies	155009271	0/07/85 1500	8 oz. glass jar	EAL/Organics	
EE-2 30-gw	MJA213	8/06/85 1015	Soil Composite	Varies	463973020	0/07/05 1500	8 oz. glass jar	California Analytical/ Inorganics	

SITE NAME: RESOURCE RECOVERY	TDD NO. : R10-8410-14	
CASE NO. 4768	PROJECT CODE: TCE-2394	
	ACCOUNT NO. : TGB-10-PUZZ	

Location Number (RRC-)	Sample Number	Date/Time Collected	Matrix/Grab or Composite	Detection limit	Federal Express Air Bill Number	Date/Time Shipped	Sample Containers	Destination/ Analysis	Remarks
EE-3 10-30 ft.		8/07/05 0930	Soil Composite	0.2 ppb			8 oz. glass jar	EPA Lab/Pesticides	
EE-3 10-30 ft.	JA560	0/07/05 0930	Soil Composite	Varies	129006651	8/05/85 1530	8 oz. glass jar	EAL/Organics	
EE-3 10-30 ft.	MJA228	8/07/85 0930	Soil Composite	Varies	129006640	8/05/85 1530	8 oz. glass jar	California Analytical/ Inorganics	
EE-3 30-gw		8/07/85 1030	Soil Composite	0.2 ppb			8 oz. glass jar	EPA Lab/Pesticides	
EE-3 30-gw	JA561	8/07/85 1030	Soil Composite	Varies	129006651	8/05/85 1530	8 oz. glass jar	EAL/Organics	
EE-3 30-gw	MJA229	8/07/05 1030	Soil Composite	Varies	129006640	8/05/85 1530	8 oz. glass jar	California Analytical/ Inorganics	
EE-4 10-20 ft.	85290825	7/17/85 1340	Soil Composite	0.2 ppb	129006603	8/02/85 1600	8 oz. glass jar	EPA Lab/Pesticides	
EE-4 10-20 ft.	JA562	7/17/85 1340	Soil Composite	Varies	129006651	0/05/85 1530	8 oz. glass jar	EAL/Organics	
EE-4 10-20 ft.	MJA231	7/17/85 1340	Soil Composite	Varies	129006640	0/05/85 1530	8 oz. glass jar	California Analytical/ Inorganics	
EE-4 20-gw	85290826	7/17/85 1615	Soil Composite	0.2 ppb	129006603	8/02/85 1600	0 oz. glass jar	EPA Lab/Pesticides	
EE-4 20-gw	JA563	7/17/85 1615	Soil Composite	Varies	129006651	8/05/85 1530	0 oz. glass jar	EAL/Organics	
EE-4 20-gw	MJA230	7/17/85 1615	Soli Composite	Varies	129006640	8/85/85 1530	0 oz. glass jar	California Analytical/ Inorganics	

SITE NAME: RESOURCE RECOVERY
CASE NO. 4768

TDD NO. : R10-8410-14
PROJECT CODE: TCE-2394
ACCOUNT NO. : TGB-10-PUZZ

Location Number (RRC-)	Sample Number	Date/Time Collected	Matrix/Grab or Composite	Detection Limit	Federal Express Air Bill Number	Date/Time Shipped	Sample Containers	Destination/ Analysis	Remarks
EE-5 10-20 ft.	85290827	7/19/85 1340	Soil Composite	0.2 ppb	129006603	8/02/85 1600	8 oz. glass jar	EPA Lab/Pesticides	
EE-5 10-20 ft.	JA565	7/19/85 1340	Soil Composite	Varies	129006651	8/05/85 1530	8 oz. glass jar	EAL/Organics	
EE-5 10-20 ft.	MJA232	7/19/85 1340	Soil Composite	Varies	129006640	0/05/05 1530	0 oz. glass jar	California Analytical/ Inorganics	
EE-5 20-gw	05290828	7/19/05 1615	Soil Composite	0.2 ppb	129006603	0/02/05 1600	8 oz. glass jar	EPA Lab/Pesticides	
EE-5 20-gw	JA566	7/19/05 1615	Soil Composite	Varies	129006651	0/05/05 1530	8 oz. glass jar	EAL/Organics	
EE-5 20-gw	MJA233	7/19/05 1615	Soil Composite	Varies	129006640	8/05/05 1530	8 oz. glass jar	California Analytical/ Inorganics	
EE-6 10-30 ft.	05310394	7/31/05 0920	Soil Composite	0.2 ppb	129006603	8/02/85 1600	0 oz. glass jar	EPA Lab/Pesticides	
EE-6 10-30 ft.	JA552	7/31/05 0920	Soil Composite	Varies	129006651	8/05/85 1530	8 oz. glass jar	EAL/Organics	
EE-6 10-30 ft.	MJA210	7/31/05 0920	Soil Composite	Varies	129006640	0/05/05 1530	8 oz. glass jar	California Analytical/ Inorganics	
EE-6 30-gw	85310395	7/31/85 1145	Soil Composite	0.2 ppb	129006603	8/02/85 1600	8 oz. glass jar	EPA Lab/Pesticides	
EE-6 30-gw	JA553	7/31/85 1145	Soil Composite	Varies	129006651	8/05/85 1530	8 oz. glass jar	EAL/Organics	
EE-6 30-gw	MJA219	7/31/85 1145	Soil Composite	Varies	129006640	8/05/85 1530	8 oz. glass jar	California Analytical/ Inorganica	

SITE NAME: RESOURCE RECOVERY
CASE NO. 4768

TDD NO. : R10-8410-14
PROJECT CODE: TCE-2394
ACCOUNT NO. : TGB-10-PUZZ

Location Number (RRC-)	Sample Number	Date/Time Collected	Matrix/Grab or Composite	Detection Limit	Federal Express Air Bill Number	Date/Time Shipped	Sample Containers	Destination/ Analysis	Remarks
EE-7 10-30 ft.	85310392	7/29/85 0935	Soil Composite	0.2 ppb	129006603	8/02/85 1600	8 oz. glass jar	EPA Lab/Pesticides	
EE-7 10-30 ft.	JA557	7/29/85 0935	Soil Composite	Varies	129006651	8/05/85 1530	8 oz. glass jar	EAL/Organics	
EE-7 10-30 ft.	MJA224	7/29/85 0935	Soil Composite	Varies	129006640	8/05/85 1530	8 oz. glass jar	California Analytical/ Inorganics	
EE-7 30-gw	85310393	7/29/85 1150	Soil Composite	0.2 ppb	129006603	8/02/85 1600	8 oz. glass jar	EPA Lab/Pesticides	
EE-7 30-gw	JA558	7/29/85 1150	Soil Composite	Varies	129006651	8/05/85 1530	8 oz. glass jar	EAL/Organics	
EE-7 30-gw	MJA225	7/29/85 1150	Soil Composite	Varies	129006640	8/05/85 1530	8 oz. glass jar	California Analytical/ Inorganics	
EE-8 10-30 ft.	85300850	7/23/85 1045	Soil Composite	0.2 ppb	129006603	8/02/85 1600	8 oz. glass jar	EPA Lab/Pesticides	
EE-8 10-30 ft.	JA548	7/23/85 1045	Soil Composite	Varies	129006651	8/05/85 1530	8 oz. glass jar	EAL/Organics	
EE-8 10-30 ft.	MJA214	7/23/85 1045	Soil Composite	Varies	129006640	8/05/85 1530	8 oz. glass jar	California Analytical/ Inorganics	
EE-8 30-gw	85300851	7/23/85 1230	Soil Composite	0.2 ppb	129006603	8/02/85 1600	8 oz. glass jar	EPA Lab/Pesticides	
EE-8 30-gw	JA549	7/23/85 1230	Soil Composite	Varies	129006651	8/05/85 1530	8 oz. glass jar	EAL/Organics	
EE-8 30-gw	MJA215	7/23/85 1230	Soil Composite	Varies	129006640	8/05/85 1530	8 oz. glass jar	California Analytical/ Inorganics	

SITE NAME: RESOURCE RECOVERY
CASE NO. 4768

TDD NO. : R10-8410-14
PROJECT CODE: TCE-2394
ACCOUNT NO. : TGB-10-PUZZ

Location Number (RRC-)	Sample Number	Date/Time Collected	Matrix/Grab or Composite	Detection Limit	Federal Express Air Bill Number	Date/Time Shipped	Sample Containers	Destination/ Analysis	Remarks
EE-9 10-30 ft.	85300852	7/25/85 0845	Soil Composite	0.2 ppb	129006603	8/02/85 1600	8 oz. glass jar	EPA Lab/Pesticides	
EE-9 10-30 ft.	JA550	7/25/85 0845	Soil Composite	Varies	129006651	8/05/85 1530	8 oz. glass jar	EAL/Organics	
EE-9 10-30 ft.	MJA216	8/25/85 0845	Soil Composite	Varies	129006640	8/05/85 1530	8 oz. glass jar	California Analytical/ Inorganics	
EE-9 30-gw	85310853	7/25/85 1100	Soil Composite	0.2 ppb	129006603	8/02/85 1600	8 oz. glass jar	EPA Lab/Pesticides	
EE-9 30-gw	JA551	7/25/85 1100	Soil Composite	Varies	129006651	8/05/85 1530	8 oz. glass jar	EAL/Organics	
EE-9 30-gw	MJA217	7/25/85 1100	Soil Composite	Varies	129006640	8/05/85 1530	8 oz. glass jar	California Analytical/ Inorganics	

APPENDIX D

ANALYTICAL REQUIREMENTS
EPA HAZARDOUS SUBSTANCE LIST

ANALYTICAL REQUIREMENTS

Analytical methods and data quality from contract laboratories is described in detail in IFB WA 84-A266, Chemical Analytical Services for Organics, and IFB WA 84-J091, Chemical Analytical Services for Inorganics. All contract laboratories were required to conform to these standards. Herbicide analyses were conducted using EPA approved extraction, analytical and quality assurance techniques, e.g. Standard Methods for the Examination of Water and Wastewater, 15th Edition, Method 509B (Chlorinated Phenoxy Acid Herbicides). Identification and quantification of herbicides was to be confirmed using two different chromatography columns.

TABLE D-1
ORGANICS ANALYSES
Hazardous Substance List (HSL) and
Contract Required Detection Limits (CRDL) *

Compound	Detection Limits Low Water [a] (ug/l)	Low Soil/Sediment [b] (ug/kg)
VOLATILES		
1. Chloromethane	10	10
2. Bromomethane	10	10
3. Vinyl Chloride	10	10
4. Chloroethane	10	10
5. Methylene Chloride	5	5
6. Acetone	10	10
7. Carbon Disulfide	5	5
8. 1,1-Dichloroethene	5	5
9. 1,1-Dichloroethane	5	5
10. trans-1.2-Dichloroethene	5	5
11. Chloroform	5	5
12. 1,2-Dichloroethane	5	5
13. 2-Butanone	10	10
14. 1,1,1-Trichloroethane	5	5
15. Carbon Tetrachloride	5	5
16. Vinyl Acetate	10	10
17. Bromodichloromethane	5	5
18. 1,1,2,2-Tetrachloroethane	5	5
19. 1,2-Dichloropropane	5	5
20. trans-1,3-Dichloropropene	5	5
21. Trichloroethene	5	5
22. Dibromochloromethane	5	5
23. 1,1,2-Trichloroethane	5	5
24. Benzene	5	5
25. cis-1,3-Dichloropropene	5	5
26. 2-Chloroethyl Vinyl Ether	10	10
27. Bromoform	5	5
28. 2-Hexanone	10	10
29. 4-Methyl-2-pentanone	10	10
30. Tetrachloroethene	5	5
31. Toluene	5	5
32. Chlorobenzene	5	5
33. Ethyl Benzene	5	5
34. Styrene	5	5
35. Total Xylenes	5	5

TABLE D-1 (CONT.)

Compound	Detection Limits Low Water[c] (ug/l)	Low Soil/Sediment[d] (ug/kg)
EXTRACTABLE ORGANICS		
1. N-Nitrosodimethylamine	10	330
2. Phenol	10	330
3. Aniline	10	330
4. bis(2-Chloroethyl) Ether	10	330
5. 2-Chlorophenol	10	330
6. 1,3-Dichlorobenzene	10	330
7. 1,4-Dichlorobenzene	10	330
8. Benzyl Alcohol	10	330
9. 1,2-Dichlorobenzene	10	330
10. 2-Methylphenol	10	330
11. bis(2-Chloroisopropyl) Ether	10	330
12. 4-Methylphenol	10	330
13. N-Nitroso-dipropylamine	10	330
14. Hexachloroethane	10	330
15. Nitrobenzene	10	330
16. Isophorone	10	330
17. 2-Nitrophenol	10	330
18. 2,4-Dimethylphenol	10	330
19. Benzoic Acid	50	330
20. bis(2-Chloroethoxy)methane	10	1600
21. 2,4-Dichlorophenol	10	330
22. 1,2,4-Trichlorobenzene	10	330
23. Naphthalene	10	330
24. 4-Chloroanaline	10	330
25. Hexachlorobutadiene	10	330
26. 4-Chloro-3-methylphenol (para-chloro-meta-cresol)	10	330
27. 2-Methylnaphthalene	10	330
28. Hexachlorocyclopentadiene	10	330
29. 2,4,6-Trichlorophenol	10	330
30. 2,4,5-Trichlorophenol	50	1600
31. 2-Chloronaphthalene	10	330
32. 2-Nitroanaline	50	1600
33. Dimethyl Phthalate	10	330
34. Acenaphthylene	10	330
35. 3-Nitroaniline	50	1600

TABLE D-1 (CONT.)

Compound		Detection Limits Low Water [c] (ug/l)	Low Soil/Sediment [d] (ug/kg)
	EXTRACTABLE ORGANICS (cont.)		
36.	Acenaphthene	10	330
37.	2,4-Dinitrophenol	50	1600
38.	4-Nitrophenol	50	1600
39.	Dibenzofuran	10	330
40.	2,4-Dinitrotoluene	10	330
41.	2,6-Dinitrotoluene	10	330
42.	Diethylphthalate	10	330
43.	4-Chlorophenyl Phenyl Ether	10	330
44.	Fluorene	10	330
45.	4-Nitroaniline	50	1600
46.	4,6-Dinitro-2-methylphenol	50	1600
47.	N-nitrosdiphenylamine	10	330
48.	4-Bromophenyl Phenyl Ether	10	330
49.	Hexachlorobenzene	10	330
50.	Pentachlorophenol	50	1600
51.	Phenathrene	10	330
52.	Anthracene	10	330
53.	Di-n-butylphthalate	10	330
54.	Fluoranthene	10	330
55.	Benzidine	50	1600
56.	Pyrene	10	330
57.	Butyl Benzyl Phthalate	10	330
58.	3,3'-Dichlorobenzidine	20	660
59.	Benzo(a)anthracene	10	330
60.	bis(2-Ethylhexyl)phthalate	10	330
61.	Chrysene	10	330
62.	Di-n-octyl Phthalate	10	330
63.	Benzo(b)fluoranthene	10	330
64.	Benzo(k)fluoranthene	10	330
65.	Benzo(a)pyrene	10	330
66.	Indeno(1,2,3-cd)pyrene	10	330
67.	Dibenz(a,h)anthracene	10	330
68.	Benzo(g,h,i)perylene	10	330

TABLE D-1 (CONT.)

	Compound	Detection Limits Low Water[e] (ug/l)	Low Soil/Sediment[f] (ug/kg)
	PESTICIDES		
1.	alpha-BHC	.05	2
2.	beta-BHC	.05	2
3.	delta-BHC	.05	2
4.	gamma-BHC (Lindane)	.05	2
5.	Heptachlor	.05	2
6.	Aldrin	.05	2
7.	Heptachlor Epoxide	.05	2
8.	Endosulfan I	.05	2
9.	Dieldrin	.1	4
10.	4,4'-DDE	.1	4
11.	Endrin	.1	4
12.	Endosulfan II	.1	4
13.	4,4'-DDD	.1	4
14.	Endrin Aldehyde	.1	4
15.	Endosulfan Sulfate	.1	4
16.	4,4'-DDT	.1	4
17.	Endrin Ketone	.1	4
18.	Methoxychlor	.5	20
19.	Chlordane	.5	20
20.	Toxaphene	1.0	40
21.	AROCHLOR 1016	.5	20
22.	AROCHLOR 1221	.5	20
23.	AROCHLOR 1232	.5	20
24.	AROCHLOR 1242	.5	20
25.	AROCHLOR 1248	.5	20
26.	AROCHLOR 1254	1.0	40
27.	AROCHLOR 1260	1.0	40

* Specific detection limits are highly matrix dependent. The detection limits listed herein are provided for guidance and may not always be achievable.

a Medium Water Contract Required Detection Limits (CRDL) for Volatile HSL Compounds are 100 times the individual Low Water CRDL.

b Medium Soil/Sediment Contract Required Detection Limits (CRDL) for Volatile HSL Compounds are 100 times the individual Low Soil/Sediment CRDL.

TABLE D-1 (CONT.)

c Medium Water Contract Required Detection Limits (CRDL) for Semi-Volatile HSL Compounds are 100 times the individual Low Water (CRDL).

d Medium Soil/Sediment Contract Required Detection Limits (CRDL) for Semi-Volatile HSL Compounds are 60 times the individual Low Soil/Sediment (CRDL).

e Medium Water Contract Required Detection Limits (CRDL) for Pesticide HSL Compounds are 100 times the individual Low Water (CRDL).

f Medium Soil/Sediment Contract Required Detection Limits (CRDL) for Pestidice HSL Compounds are 60 times the individual Low Soil/Sediment (CRDL).

TABLE D-2
INORGANIC ANALYSES

Element	Contract Required Detection Limits Water (ug/l)
Aluminum	200
Antimony	60
Arsenic	10
Barium	200
Beryllium	5
Cadmium	5
Calcium	5000
Chromium	10
Cobalt	50
Copper	25
Iron	100
Lead	5
Magnesium	5000
Manganese	15
Mercury	0.2
Nickel	40
Potassium	5000
Selenium	5
Silver	10
Sodium	5000
Thallium	10
Tin	40
Vanadium	50
Zinc	20
Cyanide	10

TABLE D-3
PHENOXY HERBICIDE ANALYSES

Compound	Detection Limits Water (ug/l)	Soil/Sediment (ug/kg)
HERBICIDES		
1. 2,4-Dichlorophenoxyacetic acid (2,4-D)	0.05	0.2
2. 2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)	0.05	0.2
3. Silvex/2,4,5-Trichlorophenoxy-propionic acid (2,4,5-TP)	0.05	0.2
4. 2-Methyl-4 chlorophenoxyacetic acid (MCPA)	0.05	0.2

TABLE D-4
ADDITIONAL ANALYSES

If the soil analyses indicate the presence of 2,4-D; 2,4,5-T; Silvex; or MCPA, archived soil samples will be submitted for dioxin analysis.

Laboratory analysis and contaminant quantification in soil samples will be conducted for:

- o 2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD)
- o 2,3,7,8-Tetrachlorodibenzofuran (2,3,7,8-TCDF)
- o Σ all 22 tetrachlorodibenzo-p-dioxin isomers (TCDDs)
- o Σ all 38 tetrachlorodibenzofuran isomers (TCDFs)
- o Σ all 14 pentachlorodibenzo-p-dioxin isomers (PsCDDs)
- o Σ all 28 pentachlorodibenzofuran isomers (PeCDFs)
- o Σ all 10 hexachlorodibenzo-p-dioxin isomers (HxCDDs)
- o Σ all 16 hexachlorodibenzofuran isomers (HxCDFs)

APPENDIX E

QUALITY ASSURANCE MEMORANDA

ecology and environment, inc.
108 SOUTH WASHINGTON, SUITE 302, SEATTLE, WASHINGTON 98104, TEL. 206-624-9537
International Specialists in the Environmental Sciences

MEMORANDUM

DATE: February 6, 1986

TO: John Osborn, FIT RPO, USEPA, Seattle

FROM: Roger McGinnis, Chemist, E&E, Seattle RNM
Andrew Hafferty, Senior Chemist, E&E, Seattle

THRU: D.A. Buecker, FIT RPM, E&E, Seattle

SUBJ: QA of Case 4679 (Inorganics)
Resource Recovery WA 0280

CC: Gerald Muth, DPO, USEPA, Region X
Harold Takenaka, DPO, USEPA, Region IX
Jack Sceva, USEPA, Seattle
Bill Ritthaler, E&E, Seattle

The Quality Assurance review of seven samples, Case 4679, collected at Resource Recovery has been completed. The seven water samples were analyzed at low level for inorganics by California Analytical Laboratories of West Sacramento, California. The samples were numbered:

MJA201	MJA206
MJA202	MJA207
MJA203	MJA208
MJA205	

Data Qualifications

The following comments refer to the laboratory performance in meeting the Quality Control Specifications outlined in IFB WA84J-091.

1) Timeliness - Acceptable

2) Initial Calibration - Acceptable

3) Continuing Calibration - Acceptable

4) Blanks - Acceptable

5) Instrument Detection Limits - Acceptable

6) ICP Interference Check - Acceptable

7) Laboratory Control Sample - Acceptable

8) Duplicate Sample Analysis - Acceptable

9) Spiked Sample Analysis

Two out of 24 spike % recoveries were out of control.

Element	% Recovery	QC Limit
Selenium	42%	75-125%
Thallium	58%	75-125%

10) Furnace AA - Acceptable

11) ICP Serial Dilutions

One out of 24 elements was out of control.

Element	% Difference	QC Limit
Potassium	13.9%	< 10%

12) Mercury Analysis - Acceptable

13) Samples

Selenium and thallium results are flagged as estimated (J) based on low spike recoveries. Interferences were noted in selenium analyses of samples MJA202, 203, 205, 206, and 207. Potassium results are flagged as estimated (J) due to differences between the serial dilution and sample analyses. Reported antimony detection limits were slightly higher than contract required limits.

Data Use

The usefulness of the data is basedon the criteria outlined in the "Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses" (R-582-5-5-01).

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers which modify the usefulness of individual values.

Case 4679
Page Three

Data Qualifiers

U - The material was analyzed for, but was not detected. Tha associated numerical value is estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because quality control criteria were not met.

R - Quality Control indicates that data unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

Q - No analytical result.

N - Presumptive evidence of presence of material (tentative identification).

S - Indicates a value determined by method of standard addition.

RM:dlk

ecology and environment, inc.
108 SOUTH WASHINGTON, SUITE 302, SEATTLE, WASHINGTON 98104, TEL. 206-624-9537
International Specialists in the Environmental Sciences

MEMORANDUM

DATE: September 6, 1985

TO: John Osborn, FIT RPO, USEPA, Region X

FROM: Roger McGinnis, Chemist, E&E, Seattle
Andrew Hafferty, Senior Chemist, E&E, Seattle

SUBJ: QA of Case 4679
Resource Recovery WA 0280

THRU: Dave Buecker, FIT RPM, E&E, Seattle

REF: TDD-R10-8507-01

CC: Gerald Muth, EPA, Manchester
Jack Sceva, EPA, Seattle
Harold Takenaka, DPO, EPA, Region IX
Bill Ritthaler, E&E, Seattle

The Quality Assurance review of two samples. Case 4679, collected at Resource Recovery has been completed. Two water samples were analyzed at low level for inorganics by California Analytical Laboratories of West Sacramento, California. The samples were numbered:

MJA234
MJA238

Data Qualifications

The following comments refer to the laboratory performance in meeting the Quality Control Specifications outlined in IFB WA 84J091.

1) Timeliness - Acceptable

2) Calibration Verification - Acceptable

3) Blanks - Acceptable

Beryllium, chromium, iron, and vanadium were present in the laboratory blank but at levels less than the CRDL.

Case 4679
Page Two

4) Instrument Detection Limits - Acceptable

5) ICP Interference Check - Acceptable

6) Laboratory Control Sample - Acceptable

7) Duplicate Sample Analysis - Acceptable

8) Spike Recoveries

One out of 24 elements was out of control.

Element	% Recovery	QC Limit
Mercury	70%	75-125%

9) Furnace AA - Acceptable

10) Mercury Analysis - Acceptable

11) Samples

Mercury results were flagged as estimated (J) based on low spike recovery.

Data Use

The usefulness of the data is based on the criteria outlined in the "Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses (R-582-5-5-01)."

The data are ACCEPTABLE for use except where flagged with data qualifiers which modify the usefulness of the individual values.

Data Qualifiers

U - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because quality control criteria were not met.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and analysis is necessary for verification.

Q - No analytical result.

N - Presumptive evidence of presence of material (tentative identification).

ecology and environment, inc.
108 SOUTH WASHINGTON, SUITE 302, SEATTLE, WASHINGTON 98104, TEL. 206-624-9537
International Specialists in the Environmental Sciences

MEMORANDUM

DATE: September 13, 1985

TO: John Osborn, FIT RPO, USEPA, Region X

FROM: Roger McGinnis, Chemist, E&E, Seattle
Andrew Hafferty, Senior Chemist, E&E, Seattle

THRU: David Buecker, FIT RPM, E&E, Seattle

SUBJ: QA of Case 4768 (Inorganics)
Resource Recovery WA 0280

REF: TDD R10-8507-01

CC: Gerald Muth, EPA, Manchester
Harold Takenaka, DPO, EPA, Region IX
Bill Ritthaler, E&E, Seattle

The Quality Assurance review of 26 samples. Case 4768, collected at Resource Recovery has been completed. The eight water samples and 18 soil samples were analyzed at low level for inorganics by California Analytical Laboratories, Inc. of West Sacramento, California. The samples were numbered:

MJA222	MJA216	MJA231
MJA223	MJA217	MJA232
MJA221	MJA218	MJA233
MJA227	MJA219	MJA212
MJA237	MJA224	MJA213
MJA210	MJA225	MJA236
MJA211	MJA228	MJA248
MJA214	MJA229	MJA249
MJA215	MJA230	

Data Qualifications

The following comments refer to the laboratory performance in meeting the Quality Control Specifications outlined in IFB WA84A-266.

1) Timeliness - Acceptable

2) Initial Calibration - Acceptable

3) Continuing Calibration - Acceptable

4) Blanks - Acceptable

5) Instrument Detection Limits - Acceptable

6) ICP Interference Check - Acceptable

7) Laboratory Control Sample - Acceptable

8) Duplicate Sample Analysis

Two out of 24 of the water matrix sample % RPDs were out of control.

Element	% RPD	QC Limit
Lead	34%	<20%
Vanadium	21%	<20%

9) Spiked Sample Analysis

Two out of 18 soil matrix sample % recoveries were out of control.

Element	% Recovery	QC Limit
Antimony	58%	75-125%
Selenium	30%	75-125%

Four out of 24 water matrix sample % recoveries were out of control.

Element	% Recovery	QC Limit
Antimony	56%	75-125%
Arsenic	65%	75-125%
Lead	15%	75-125%
Thallium	68%	75-125%

10) ICP Serial Dilution

No serial dilution was done for a soil matrix sample.

11) Furnace AA - Acceptable

12) Mercury Analysis - Acceptable

13) Samples

Results are reported on a dry weight basis for soil matrix samples. Antimony and selenium results for soil samples are flagged as estimated (J) based on low spike recoveries.

Vanadium results for water matrix samples are flagged as estimated (J) due to low duplicate analysis RPDs. Antimony, arsenic, and thallium results for water samples are flagged as estimated (J) based on low spike recoveries. Lead results for water samples are rejected (R) due to excessively low spike recovery.

Data Use

The usefulness of the data is based on the criteria outlined in the "Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses" (R-582-5-5-01).

The data are ACCEPTABLE for use except where flagged with data qualifiers which modify the usefulness of the individual values.

Lead data for water samples are NOT usable.

Data Qualifiers

U - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because quality control criteria were not met.

R - Quality Control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

Q - No analytical result.

N - Presumptive evidence of presence of material (tentative identification).

E - The detection limit was elevated as a result of matrix interference.

RM:dk

ecology and environment, inc.

108 SOUTH WASHINGTON, SUITE 302, SEATTLE, WASHINGTON 98104, TEL. 206-624-9537

International Specialists in the Environmental Sciences

MEMORANDUM

DATE: September 13, 1985

TO: John Osborn, FIT RPO, USEPA, Region X

FROM: Roger McGinnis, Chemist, E&E, Seattle RNM
Andrew Hafferty, Senior Chemist, E&E, Seattle

THRU: Dave Buecker, FIT RPM, E&E, Seattle

SUBJ: QA of Case 4768 (HSL Organics)
Resource Recovery, WA 0280

REF: TDD R10-8507-01

CC: Gerald Muth, EPA, Manchester
Jack Sceva, EPA, Seattle
Harold Takenaka, DPO, EPA, Region IX
Bill Ritthaler, E&E, Seattle

The Quality Assurance review of 12 samples. Case 4768, collected at Resource Recovery Landfill has been completed. The 12 water samples were analyzed at low level by Analytical Technologies, Inc. of National City, California for full HSL organics. The samples were numbered:

JA301	JA554	JA573
JA302	JA568	JA574
JA303	JA571	JA575
JA338	JA572	JA576

Data Qualifications

The following comments refer to the laboratory performance in meeting the Quality Control Specifications outlined in IFB WA84A-266.

I. Volatiles and Semi-Volatile Compounds

1) Timeliness - Acceptable

2) GC/MS Instrument Tuning - Acceptable

3) Initial Calibration - Acceptable

4) Continuing Calibration - Acceptable

5) Instrument Detection Limits - Acceptable

6) Blanks

The VOA fraction blanks all contained several contaminants but all were present at levels less than the CRDL.

The semi-volatile fraction blanks contained several contaminants present at levels less than the CRDL. The BNA blank prepared on 8/08/85 contained 84 ug/l of di-n-octylphthalate which is greater than 5 times the CRDL.

7) Surrogate Recoveries

Twelve out of 96 semi-volatiles % Recoveries were out of control.

Sample	Compound	% Recovery	QC Limit
JA568	d_5-nitrobenzene	33%	41-120%
JA571	d_5-nitrobenzene	12%	41-120%
JA573	d_5-phenol	10%	15-96 %
	2-fluoropheol	4%	23-107%
	2,4,6-tribromophenol	7%	20-105%
JA575	d_5-nitrobenzene	27%	41-120%
JA576	d_5-nitrobenzene	3%	41-120%
	2-flurobiphenyl	27%	44-119%
JA301	d_5-nitrobenzene	0%	41-120%
	2-flurobiphenyl	1%	44-119%
JA303RE	2-flurobiphenyl	33%	44-119%
Blank (8/13/85)	2-flurobiphenyl	39%	44-119%

Samples JA568, JA571, JA573, JA575, JA576, and JA301 were not re-extraeted as required, due to insufficient sample volume.

8) Matrix Spike and Matrix Spike Duplicates

Two out of 20 VOA % Recoveries were out of control.

Sample	Compound	% Recovery	QC Limit
JA554 MS	1,1-dichloroethene	150%	61-145%
JA554 MSD	1,1-dichloroethene	150%	61-145%

Six out of 48 semi-volatile % Recoveries were out of control.

Sample	Compound	% Recovery	QC Limit
JA572 MSD	1,2,4-Trichlorobenzene	35%	39-98 %
JA572 MS	di-n-butylphthalate	10%	11-117%

Sample	Compound	% Recovery	QC Limit
JA572 MS	2-chlorophenol	138%	27-123%
JA572 MSD	2-chlorophenol	148%	27-123%
JA572 MS	2-chloro-3-methylphenol	141%	23-97 %
JA572 MSD	2-chloro-3-methylphenol	141%	23-97 %

9) Laboratory Contact

The laboratory was contacted on September 19, 1985. See attached telephone log.

10) Samples

The results for the base/neutral fraction of samples JA301 and JA576 were rejected (R) for compounds not detected and were flagged as estimated (J) for compounds which were detected, as required when surrogate % Recoveries are less than 10%.

The results for the acid fraction of sample JA573 were rejected (R) for compounds not detected and were flagged as estimated (J) for compounds which were detected, as required when surrogate % Recoveries were less than 10%.

II. Pesticides/PCBs

1) Timeliness - Acceptable

2) Instrument Performance - Acceptable

3) Calibration

The laboratory reported the linearity standard deviation rather than the % RSD on 8/07/85. The % RSD for Endrin was 13% (QA Limit < 10%).

4) Blanks - Acceptable

5) Surrogate Recoveries

Four dibutylchlorendate surrogate % Recoveries were outside the advisory limits.

6) Matrix Spike and Matrix Spike Duplicates - Acceptable

7) Samples

Results for Endrin were flagged as estimated (J) based on a high % RSD.

Data Use

The usefulness of the data is based on the criteria outlined in the "Laboratory Data Validation Functional Guidelines for Evaluating Organic Analyses" (R-582-5-5-01).

The data are ACCEPTABLE for use except where flagged with data qualifiers which modify the use of the individual values.

Data Qualifiers

U - The material was analyzed for, but was not detected. The associated numerical value is estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because quality control criteria were not met.

R - Quality Control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

Q - No analytical result.

N - Presumptive evidence of presence of material (tentative identification).

RM:jkb

In Reference to Case No(s):
4768

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log

Date of Call: 6 September 85

Laboratory Name: Analytical Technologies Inc

Lab Contact: Mike Hiatt

Region: 10

Regional Contact: Andrew Hafferty

Call Initiated By: ____ Laboratory X Region

In reference to data for the following sample number(s):

Summary of Questions/Issues Discussed:

1. VOA LLDs for CS_2, 11, di Cl ethene, & 1122 tetra Cl ethane
2. Benzidine LLD varies
3. JA654RE why no PCP hit reported
4. JA 675 why no trans 1,2 -di Cl ethene hit reported

Summary of Resolution:

1530 call by AH to ATI - Mike Hiatt unavailable will call back
19 Sept contact with Mike Hiatt - missed connections several times previously
1 & 2 normal LLD won't close enough to required LLD - lab made aware of the discrepency
#3 PCP hit is real we will edit data and initial
#4 - not a real hit

Signature [signature]

19 September 85
Date

Distribution: (1)Lab Copy, (2)Region Copy, (3)SMO Copy

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International Specialists in the Environmental Sciences

MEMORANDUM

DATE: September 6, 1985

TO: John Osborn, FIT RPO, USEPA, Region X

FROM: John Ryding, Chemist, E&E, Seattle
Andrew Hafferty, Senior Chemist, E&E, Seattle

SUBJ: QA of Case 4679 (Organics)
Resource Recovery WA 0280

THRU: Dave Buecker, FIT RPM, E&E, Seattle

REF: TDD-R10-8507-01

CC: Gerald Muth, EPA, Manchester
John Tilstra, DPO, EPA, Region VIII
Andrew Hafferty, E&E, Seattle

The Quality Assurance review of fourteen samples, Case 4579, collected at Resource Recovery has been completed. Fourteen water samples were analyzed at low level by Rocky Mountain Analytical Lab of Arvada, Colorado. Four samples were analyzed for volatiles, nine samples were analyzed for full HSL organics and one sample was analyzed for extractables. The samples were numbered:

Sample	Analysis	Sample	Analysis
JA533	HSL	JA540	HSL
JA534	VOA	JA541	HSL
JA535	HSL	JA542	VOA
JA536	HSL	JA569	HSL
JA537	VOA	JA570	HSL
JA538	HSL	JA578	VOA
JA539	HSL	JA579	Extractables

Data Qualifications

The following comments refer to the laboratory performance in meeting the Quality Control Specifications outlined in IFB WA84A-265.

Case 4679
Page Two

1) Timeliness

The pesticide fraction extraction of samples JA533, JA535, JA536, JA538, JA539, JA540 and JA541 took place eight days after sample receipt. The QC limit is five days.

2) Instrument Tuning - Acceptable

3) Initial Calibration - Acceptable

4) Continuing Calibration

Two SPCC compounds were out of control.

Compound	Date	Fraction	RF	QC Limit
1,1,2,2-Tetrachloroethane	7/13	VOA	0.286	>0.300
2,4-Dinitrophenol	7/31	BNA	0.030	>0.050

One CCC compound was out of control.

Compound	Date	Fraction	%D	QC Limit
4-Chloro-3-methylphenol	8/17	BNA	43	25%

5) Detection Limits - Acceptable

6) Pesticide Standards

a. Linearity - The following compounds exceeded QC Limits.

Compound	Date	Column	% RSD	QC Limit
4,4'-DDT	7/25/85	3% OV-1	13	<10%
Aldrin	7/29/85	1.5% OV-17/1.95% QF-1	12.1	<10%

b. 4,4'DDT/Endrin Breakdown - Acceptable

c. Dibutylchlorendate Retention Time Shift

Sample	Date	Column	% D	QC Limit
JA533	7/25	3% OV-1	3.3	<2%
JA569	7/31	3% OV-1	3.7	<2%
JA570	7/31	3% OV-1	2.6	<2%
JA569	7/29	1.5% OV-17/1.95% QF-1	2.4	<2%

d. Standards Summary

The following compounds were out of control.

Compound	Date	Column	% D	QC Limit
4,4'-DDT	7/26	3% OV-1	24	<20%
Methoxychlor	8/1	3% OV-1	37	<20%

7) Blanks - Methylene Chloride, 2-Hexanone and 4-Methyl-2-Pentanone were reported in the blank.

8) Surrogates - Acceptable

9) Matrix Spike and Matrix Spike Duplicate

The following compounds exceeded % Recovery QC limits in samples JA533 (BNA) and JA535 (Pest.).

Compound		Fraction	% Recovery	QC Limits
1,2,4-Trichlorobenzene	(MS)	B/N	104%	39-98 %
1,2,4-Trichlorobenzene	(MSD)	B/N	118%	39-98 %
Pyrene	(MS)	B/N	128%	26-127%
Pentachlorophenol	(MS)	Acid	130%	09-103%
Pentachlorophenol	(MSD)	Acid	140%	09-103%
Lindane	(MS)	Pest.	130%	56-123%
Lindane	(MSD)	Pest.	135%	56-123%
Heptachlor	(MS)	Pest.	140%	40-131%
Heptachlor	(MSD)	Pest.	135%	40-131%
Aldrin	(MS)	Pest.	130%	40-120%
Aldrin	(MSD)	Pest.	125%	40-120%
Dieldrin	(MS)	Pest.	140%	52-126%
Dieldrin	(MSD)	Pest.	142%	52-126%
Endrin	(MS)	Pest.	142%	56-121%
Endrin	(MSD)	Pest.	134%	56-121%
4,4'-DDT	(MS)	Pest.	150%	38-127%
4,4'-DDT	(MSD)	Pest.	144%	38-127%

One compound in the B/N fraction of JA579 MSD was out of control for RPD.

Compound	RPD	QC Limit
Di-n-Butylphthalate	69.7	<40

10) Samples - TICs found in certain samples were also detected at equivalent levels in the blank. These compounds were deleted from the data sheets.

Data Use

The usefulness of the data is based on the criteria outlined in the "Laboratory Data Validation Functional Guidelines for Evaluating Organic Analyses (R-582-5-5-01)."

The data is ACCEPTABLE for use except where data qualifiers modify the usefulness of individual values.

Data Qualifiers

U - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because quality control criteria were not met.

R - Quality Control indicates that data are unusable (compound may or may not be present).

Q - No analytical result.

N - Presumptive evidence of presence of material (tentative identification).

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108 SOUTH WASHINGTON, SUITE 302, SEATTLE, WASHINGTON 98104, TEL. 206-624-9537
International Specialists in tha Environmental Sciences

MEMORANDUM

DATE: October 16, 1985

TO: John Osborn, FIT RPO, EPA, Seattle

FROM: John Ryding, Chemist, E&E, Seattle
Andrew Hafferty, Senior Chemist, E&E, Seattle

THRU: D.A. Buecker, FIT RPM, E&E, Seattle

SUBJ: QA of Case 4768 (Organics)
Resource Recovery WA 0280

REF: TDD R10-8510-01

CC: Gerald Muth, DPO, EPA, Region X
Harold Takenaka, DPO, EPA, Region IX
Bill Ritthaler, E&E, Seattle

The Quality Assurance review of 17 samples with one duplicate, Case 4768, collected at Resource Recovery has been completed. One soil sample was analyzed at low level for HSL volatiles only by EAL Corporation of Richmond, California. Sixteen soil samples and one duplicate were analyzed at low levels for HSL semi-volatiles and pesticides only. The samples were numbered:

JA339 (VOA)	JA551	JA561
JA544	JA552	JA562
JA545	JA553	JA563
JA548	JA557	JA563 (dup)
JA549	JA558	JA565
JA550	JA560	JA566

Data Qualifications

The following comments refer to the laboratory performance in meeting the Quality Control specifications outlined in IFB WA84A-266.

1) Timeliness

The laboratory extracted and analyzed all samples withing QC time limits. However, the following samples were held in the field for more two days prior to shipment to the lab:

Case 4768
Page Two

Sample No	Holding Time in the Field
JA548	13 days
JA549	13
JA550	11
JA551	11
JA552	6
JA553	6
JA557	6
JA558	6
JA563	19
JA565	17
JA566	17

2) Instrument Tuning - Acceptable

3) Initial and Continuing Calibrations - Acceptable

4) Detection Limits

In some instances, the detection limits for the multi-component pesticides and PCBs were above the CRDL.

5) Pesticide Standards

a) Linearity

On column SP-2250/SP-2401 (quantitation). This is a questionable choice as a confirmation column.

Date	Instrument	Compound	% RSD	QC Limit
9/9/85	2	Aldrin	14%	10%
9/9/85	2	4,4'-DDT	16%	10%
9/12/85	1	4,4'-DDT	16%	10%
9/12/85	2	Aldrin	14%	10%
9/12/85	2	4,4'-DDT	21%	10%

On column SE-30/SP-2401 (confirmation)

Date	Instrument	Compound	% RSD	QC Limit
9/9/85	2	4,4'-DDT	11%	10%
9/12/85	2	4,4'-DDT	16%	10%

b) 4,4'-DDT/Endrin Breakdown - Acceptable

c) Dibutylchlorendate Retention Time Shift - Acceptable

d) Standards Summary

On the quantitation column

Instrument	Compound	% D	QC Limit
1	Endosulfan Sulfate	35%	15%

6) Blanks

Methylene chloride and bis(2-ethylhexyl)phthalate were found in the VOA and BNA blanks. The pesticide blank is not acceptable, the laboratory should take immediate action to eliminate an ongoing pesticide blank problem noted by the reviewers. Only one blank was run with two sets of samples run on different days.

7) Surrogates

Acceptable as reported; however, most of the surrogate recoveries could not be reproduced from the raw data.

8) Matrix Spike and Matrix Spike Duplicate

The following compounds exceeded QC limits for % recovery:

Compound	% Recovery	QC Limit
1,2,4-Trichlorobenzene (MSD)	34	38-107%
Pyrene (MS)	32	35-142%
Pyrene (MSD)	24	35-142%
Lindane (MS)	328	46-127%
Lindane (MSD)	364	46-127%
Heptachlor (MS)	24	35-130%
Heptachlor (MSD)	197	35-130%
Aldrin (MS)	373	34-132%
Aldrin (MSD)	392	34-132%
Endrin (MSD)	153	42-139%
4,4'-DDT (MS)	149	23-134%
4,4'-DDT (MSD)	163	23-134%

The % recoveries could not be reproduced from the raw data.

The following compounds exceed QC limits for RPD:

Compound	RPD	QC Limit
Acenaphthene	41	<19
1,4-Oichlorobenzene	28	<27
Phenol	68	<35
4-Nitrophenol	55	<50
Heptachlor	157	<31

9) Samples

The volatile fraction data of JA339 was flagged "J" due to the surrogate recoveries and contaminant concentrations being non-reproducible. The BNA data for samples JA550-JA560 was flagged "J" due to the non-reproducibility of the contaminant concentrations and surrogate recoveries. With a few exceptions all positive hits in the pesticide fraction were flagged "R" due to severe contamination in the blank. These exceptions are: JA557 4,4-DDD flagged "N," JA560 endosulfan sulfate and methoxychlor flagged "N," PCB data in JA560 acceptable (with "J"), and JA561 Aroclor 1242 flagged "N." All pesticide data has been flagged "J" due to poor linearity.

10) Tentatively Identified Compounds

4-Hydroxy-4-methyl-2-pentanone (diacetone alcohol) was detected and in some cases identified on the TIC data sheets in nearly every sample. This compound was detected in the blank but at significantly lower levels than in the samples. However, this compound is an aldol concensation product of an acetone reaction which has been noted is several other EAL data packages, e.g., E&E , QA memo dated October 3, 1985; Case 4680 from R. McGinnis and A. Hafferty to J. Osborn, RPO, USEPA, Region X. The data is not reliable and has been deleted from the data sheets in this report.

Data Use

The usefulness of the data is based on the criteria outlined in the "Laboratory Dta Validation Functional Guidelines for Evaluating Organic Analyses (R-582-5-5-01)."

Considering the above mentioned factors, the data is useful for LIMITED PURPOSES ONLY.

Pesticide/PCB data indicating positive results, except where specifically mentioned, is unusable.

Data Qualifiers

U - The material was analyzed for, but was not detected. The associated numerical value is estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because quality control criteria were not met.

R - Quality Control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

Q - No analytical result.

N - Presumptive evidence of presence of material (tentative identification).

JR:dlk

ecology and environment, inc.

108 SOUTH WASHINGTON, SUITE 302, SEATTLE, WASHINGTON 98104, TEL. 206-624-9537

International Specialists In the Environmental Sciences

MEMORANDUM

DATE: October 16, 1985

TO: John Osborn, FIT RPO, EPA, Seattle

FROM: John Ryding, Chemist, E&E, Seattle
Andrew Hafferty, Senior Chemist, E&E, Seattle

THRU: D.A. Buecker, FIT RPM, E&E, Seattle

SUBJ: QA of Case 4768 (Organics)
Resource Recovery WA 0280

REF: TDD R10-8510-01

CC: Gerald Muth, DPO, EPA, Region X
Harold Takenaka, DPO, EPA, Region IX
Bill Ritthaler, E&E, Seattle

The Quality Assurance review of two samples. Case 4768, collected at Resource Recovery has been completed. Two soil samples were analyzed at low level for semi-volatiles and pesticides/PCBs by EAL Corporation of Richmond, California. The samples were numbered:

JA546 JA547

Data Qualifications

The following comments refer to the laboratory performance in meeting the Quality Control specifications outlined in IFB WA84A-265.

1) Timeliness - Acceptable

2) Instrument Tuning - Acceptable

3) Initial and Continuing Calibration - Acceptable

4) Detection Limits

Limits for multi-component pesticides and PCBs were above the CRDL.

5) Pesticide Standards

a) Linearity

On column SP-2250/SP-2401 (quantitation)

Compound	% RSD	QC Limit
Aldrin	15%	10%
Endrin	12%	10%
4,4'-DDT	21%	10%

On column SE-30/SP-2401 (confirmation). This is a questionable choice as a confirmation column.

Compound	% RSD	QC Limit
4,4'-DDT	16%	10%

b) 4,4'-DDT/Endrin Breakdown - Acceptable

c) Dibutylchlorendate Retention Time Shift - Acceptable

d) Standards Summary - Acceptable

6) Blanks

Bis(2-ethylhexyl)phthalate was found in the BNA blank. The pesticide blank is not acceptable. The laboratory should take immediate action to eliminate an ongoing pesticide blank problem noted by the reviewers.

7) Surrogates

Acceptable as reported; however, most of the surrogate recoveries could not be reproduced from the raw data.

8) Matrix Spike and Matrix Spike Duplicate

The following compounds exceeded QC limits for % recovery:

Compound	% Recovery	QC Limit
1,2,4-Trichlorobenzene (MSD)	34	38-107%
Pyrene (MS)	32	35-142%
Pyrene (MSD)	24	35-142%
Lindane (MS)	328	46-127%
Lindane (MSD)	364	46-127%
Heptachlor (MS)	24	35-130%

Heptachlor (MSD)	197	35-130%
Aldrin (MS)	373	34-132%
Aldrin (MSD)	392	34-132%
Endrin (MSD)	153	42-139%
4,4'-DDT (MS)	149	23-134%
4,4'-DDT (MSD)	163	23-134%

The % recoveries could not be reproduced from the raw data.

The following compounds exceed QC limits for RPD:

Compound	RPD	QC Limit
Acenaphthene	41	<19
1,4-Dichlorobenzene	28	<27
Phenol	68	<35
4-Nitrophenol	55	<50
Heptachlor	157	<31

9) Samples

The BNA fraction data was flagged "J" due to the non-reproducibility of the contaminant concentrations and surrogate recoveries. All positive hits of the pesticide fraction were flagged "R" due to severe contamination of the blank. All pesticide data was flagged "J" due to poor linearity.

10) Tentatively Identified Compounds

4-Hydroxy-4-methyl-2-pentanone (diacetone alcohol) was detected and identified on the TIC data sheets in nearly every sample. This compound was detected in the blank but at significantly lower levels than in the samples. However, this compound is an aldol condensation product of an acetone reaction which has been noted in several other EAL data packages, e.g., E&E, QA memo data October 3, 1985; Case 4680 from R. McGinnis and A. Hafferty to J. Osborn, RPO, USEPA, Region X. The data is not reliable and has been deleted from the data sheets in this report.

Data Use

The usefulness of the data is based on the criteria outlined in the "Laboratory Data Validation Functional Guidelines for Evaluating Organic Analyses (R-582-5-5-01)."

Considering the above mentioned factors, the data is useful for LIMITED PURPOSES ONLY.

Pesticide/PCB data is suspect.

Data Qualifiers

U - The material was analyzed for, but was not detected. The associated numerical value is estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because quality control criteria were not met.

R - Quality Control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

Q - No analytical result.

N - Presumptive evidence of presence of material (tentative identification).

JR:dlk

APPENDIX F

SUBSURFACE SOIL ANALYTICAL RESULTS

Explanation of data modifiers:

U:	undetected at specified level
J:	estimated concentration only
R:	value rejected during Quality Assurance review
*:	not analyzed for
GW:	depth at which ground water was encountered
SCAN:	Relative Retention Time Indicator

RESOURCE RECOVERY CORP., PASCO, WA.
SUMMARY OF BASE/NEUTRAL/ACID COMPOUND RESULTS
FOR SUBSURFACE SEDIMENT SAMPLES COLLECTED JULY/AUGUST 1985
(ug/kg) DRY WEIGHT

LOCATION	N-NITROSO DIMETHYLAMINE	PHENOL	ANILINE	BIS(2-CHLORO ETHYL)ETHER	2-CHLORO-PHENOL	1,3-DICHLORO BENZENE	1,4-DICHLORO BENZENE	BENZYL ALCOHOL
EE1 10-30'	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE1 30'-GW	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE2 10-30'	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE2 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE3 10-30'	350.00 U	260.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE3 30'-GW	350.00 U	1900.00 J	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE4 10-20'	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE4 20'-GW	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE5 10-20'	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U
EES 20'-GW	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE6 10-30'	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U
EE6 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE7 10-30'	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE7 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE8 10-30'	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE8 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE9 10-30'	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U
EE9 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U

LOCATION	1,2-DICHLORO BENZENE	2-METHYLPHENOL	BIS(2CHLOROISO PROPYL)ETHER	4-METHYL PHENOL	N-NITROSO DIPROPYLAMINE	HEXACHLORO ETHANE	NITROBENZENE	ISOPHORONE
EE1 10-30'	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE1 30'-GW	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE2 10-30'	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE2 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE3 10-30'	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE3 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE4 10-20'	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE4 20'-GW	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE5 10-20'	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U
EES 20'-GW	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE6 10-30'	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U
EE6 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE7 10-30'	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE7 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE8 10-30'	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EES 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE9 10-30'	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U
EE9 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U

LOCATION	2-NITROPHENOL	2,4-DIMETHYL PHENOL	BENZOIC ACID	BIS(2-CHLORO ETHOXY)METHANE	2,4 DICHLORO PHENOL	1,2,4 - TRI CHLOROBENZENE	NAPHTHALENE
EE1 10-30'	340.00 U	340.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE1 30'-GW	340.00 U	340.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE2 10-30'	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE2 30'-GW	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE3 10-30'	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	1700.00 J
EE3 30'-GW	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE4 10-20'	340.00 U	340.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE4 20'-GW	340.00 U	340.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE5 10-20'	360.00 U	360.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE5 20'-GW	340.00 U	340.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE6 10-30'	360.00 U	360.00 U	1700.00 U	1700.00 U	1700.00 U	1700.00 U	1700.00 U
EE6 30'-GW	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE7 10-30'	340.00 U	340.00 U	1700.00 U	360.00 U	360.00 U	360.00 U	360.00 U
EE7 30'-GW	350.00 U	350.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE5 10-30'	350.00 U	350.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE8 30'-GW	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE9 10-30'	360.00 U	360.00 U	1700.00 U	360.00 U	360.00 U	360.00 U	360.00 U
EE9 30'-GW	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	350.00 U

LOCATION	4-CHLORO ANILINE	HEXACHLORO BUTADIENE	4-CHLORO-3-METHYLPHENOL	2-METHYL NAPHTHALENE	HEXACHLOROCY CLOPENTADIENE	2,4,6-TRI CHLOROPHENOL	2,4,5-TRI CHLOROPHENOL
EE1 10-30'	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	1700.00 U
EE1 30'-GW	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	1700.00 U
EE2 10-30'	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	1700.00 U
EE2 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	1700.00 U
EE3 10-30'	350.00 U	350.00 U	350.00 U	1200.00 J	350.00 U	350.00 U	1700.00 U
EE3 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	1700.00 U
EE4 10-20'	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	1700.00 U
EE4 20'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	1700.00 U
EE5 10-20'	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	1700.00 U
EE5 20'-GW	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	1700.00 U
EE6 10-30'	1700.00 U	1700.00 U	1700.00 U	1700.00 U	1700.00 U	1700.00 U	1700.00 U
EE6 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	1700.00 U
EE7 10-30'	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	1700.00 U
EE7 30'-GW	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	1700.00 U
EE8 10-30'	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	1700.00 U
EE8 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	1700.00 U
EE9 10-30'	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	1700.00 U
EE9 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	1700.00 U

LOCATION	2-CHLORO NAPHTHALENE	2-NITROANILINE	DIMETHYL PHTHALATE	ACENAPHTHYLENE	3-NITROANILINE	ACENAPHTHENE
EE1 10-30'	340.00 U	1700.00 U	340.00 U	340.00 U	1700.00 U	340.00 U
EE1 30'-GW	340.00 U	1700.00 U	340.00 U	340.00 U	1700.00 U	340.00 U
EE2 10-30'	350.00 U	1700.00 U	350.00 U	350.00 U	1700.00 U	350.00 U
EE2 30'-GW	350.00 U	1700.00 U	350.00 U	350.00 U	1700.00 U	350.00 U
EE3 10-30'	350.00 U	1700.00 U	350.00 U	350.00 U	1700.00 U	370.00 J
EE3 30'-GW	350.00 U	1700.00 U	350.00 U	350.00 U	1700.00 U	350.00 U
EE4 10-20'	340.00 U	1700.00 U	340.00 U	340.00 U	700.00 U	340.00 U
EE4 20'-GW	340.00 U	1700.00 U	340.00 U	340.00 U	1700.00 U	340.00 U
EE5 10-20'	340.00 U	1700.00 U	340.00 U	340.00 U	700.00 U	360.00 U
EE5 20'-GW	340.00 U	1700.00 U	340.00 U	340.00 U	1700.00 U	340.00 U
EE6 10-30'	360.00 U	1700.00 U	360.00 U	360.00 U	1700.00 U	360.00 U
EE6 30'-GW	350.00 U	1700.00 U	350.00 U	350.00 U	1700.00 U	350.00 U
EE7 10-30'	340.00 U	1700.00 U	340.00 U	340.00 U	1700.00 U	340.00 U
EE7 30'-GW	350.00 U	1700.00 U	350.00 U	350.00 U	1700.00 U	340.00 U
EE8 10-30'	350.00 U	1700.00 U	350.00 U	350.00 U	1700.00 U	350.00 U
EE8 30'-GW	350.00 U	1700.00 U	350.00 U	350.00 U	1700.00 U	350.00 U
EE9 10-30'	360.00 U	1700.00 U	360.00 U	360.00 U	1700.00 U	360.00 U
EE9 30'-GW	350.00 U	1700.00 U	350.00 U	350.00 U	1700.00 U	360.00 U

LOCATION	2,4-DINITRO PHENOL	4-NITROPHENOL	DIBENZOFURAN	2,4-DINITRO TOLUENE	2,6-DINITRO TOLUENE	DIETHYL PHTHALATE	4-CHLORO-PHENYL/PHENYL ETHER	FLUORENE
EE1 10-30'	1700.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE1 30'-GW	1700.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE2 10-30'	1700.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE2 30'-GW	1700.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE3 10-30'	1700.00 U	1700.00 U	190.00 J	350.00 U	350.00 U	350.00 U	350.00 U	270.00 J
EE3 30'-GW	1700.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE4 10-20'	1700.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE4 20'-GW	1700.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE5 10-20'	1700.00 U	1700.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U
EE5 20'-GW	1700.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE6 10-30'	1700.00 U	1700.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U
EE6 30'-GW	1700.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE7 10-30'	1700.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE7 30'-GW	1700.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE8 10-30'	1700.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE8 30'-GW	1700.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE9 10-30'	1700.00 U	1700.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U
EE9 30'-GW	1700.00 U	1700.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U

LOCATION	4-NITROANILINE	4,6-DINITRO-2 METHYLPHENOL	N-NITROSODI PHENYLAMINE	4-BROMOPHENYL PHENYL ETHER	HEXACHLORO BENZENE	PENTACHLORO PHENOL	PHENANTHRENE	ANTHRACENE
EE1 10-30'	1700.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	1700.00 U	340.00 U	340.00 U
EE1 30'-GW	1700.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	1700.00 U	340.00 U	340.00 U
EE2 10-30'	1700.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U
EE2 30'-GW	1700.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U
EE3 10-30'	1700.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	1700.00 U	1300.00 J	200.00 J
EE3 30'-GW	1700.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U
EE4 10-20'	1700.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	1700.00 U	340.00 U	340.00 U
EE4 20'-GW	1700.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	1700.00 U	340.00 U	340.00 U
EE5 10-20'	1700.00 U	1700.00 U	360.00 U	360.00 U	360.00 U	1700.00 U	360.00 U	360.00 U
EE5 20'-GW	1700.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	1700.00 U	340.00 U	340.00 U
EE6 10-30'	1700.00 U	1700.00 U	360.00 U	360.00 U	360.00 U	1700.00 U	360.00 U	360.00 U
EE6 30'-GW	1700.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U
EE7 10-30'	1700.00 U	1700.00 U	340.00 U	340.00 U	340.00 U	1700.00 U	340.00 U	340.00 U
EE7 30'-GW	1700.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U
EE8 10-30'	1700.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U
EE8 30'-GW	1700.00 U	1700.00 U	350.00 U	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U
EE9 10-30'	1700.00 U	1700.00 U	360.00 U	360.00 U	360.00 U	1700.00 U	360.00 U	360.00 U
EE9 30'-GW	1700.00 U	1700.00 U	360.00 U	360.00 U	360.00 U	1700.00 U	360.00 U	360.00 U

LOCATION	DI-N-BUTYL PHTHALATE	FLUORANTHENE	BENZIDINE	PYRENE	BUTYL BENZYL PHTHALATE	3,3'-DICHLORO BENZIDINE	BENZO(A) ANTHRACENE	BIS(2-ETHYL HEXYL)PHTHALATE
EE1 10-30'	340.00 U	340.00 U	1700.00 U	340.00 U	340.00 U	680.00 U	340.00 U	340.00 U
EE1 30'-GW	340.00 U	340.00 U	1700.00 U	340.00 U	340.00 U	680.00 U	340.00 U	340.00 U
EE2 10-30'	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U	700.00 U	350.00 U	386.00 U
EE2 30'-GW	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U	700.00 U	350.00 U	350.00 U
EE3 10-30'	2000.00 J	960.00 J	1700.00 U	1400.00 J	430.00 J	700.00 U	320.00 J	1400.00 U
EE3 30'-GW	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U	700.00 U	350.00 U	390.00 U
EE4 10-20'	340.00 U	340.00 U	1700.00 U	340.00 U	340.00 U	680.00 U	340.00 U	340.00 U
EE4 20'-GW	340.00 U	340.00 U	1700.00 U	340.00 U	340.00 U	690.00 U	340.00 U	340.00 U
EE6 10-20'	360.00 U	360.00 U	1700.00 U	360.00 U	360.00 U	710.00 U	360.00 U	360.00 U
EE6 20'-GW	340.00 U	340.00 U	1700.00 U	340.00 U	340.00 U	680.00 U	340.00 U	340.00 U
EE6 10-30'	360.00 U	360.00 U	1700.00 U	360.00 U	360.00 U	720.00 U	360.00 U	360.00 U
EE6 30'-GW	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U	700.00 U	350.00 U	350.00 U
EE7 10-30'	340.00 U	340.00 U	1700.00 U	340.00 U	340.00 U	170.00 U	340.00 U	340.00 U
EE7 30'- GW	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U	700.00 U	350.00 U	350.00 U
EE6 10-30'	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U	700.00 U	350.00 U	350.00 U
EE6 30'-GW	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U	700.00 U	350.00 U	350.00 U
EE9 10-30'	360.00 U	360.00 U	1700.00 U	360.00 U	360.00 U	720.00 U	360.00 U	360.00 U
EE9 30'-GW	350.00 U	350.00 U	1700.00 U	350.00 U	350.00 U	700.00 U	350.00 U	350.00 U

LOCATION	CHRYSENE	DI-N-OCTYL PHTHALATE	BENZO(B) FLUORANTHENE	BENZO(K) FLUORANTHENE	BENZO(A) PYRENE	INDENO(1,2,3-CD) PYRENE	DIBENZ(A,H) ANTHRACENE
EE1 10-30'	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE1 30'-GW	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE2 10-30'	350.00 U	350.00 U	350.00 U	350.00 U	450.00 R	350.00 U	350.00 U
EE2 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	365.00 R	350.00 U	350.00 U
EE3 10-30'	220.00 J	1900.00 J	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE3 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	150.00 J	350.00 U	350.00 U
EE4 10-20'	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE4 20'-GW	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE5 10-20'	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U
EE5 20'-GW	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U	340.00 U
EE6 10-30'	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U
EE6 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE7 10-30'	340.00 U	340.00 U	340.00 U	340.00 U	170.00 J	340.00 U	340.00 U
EE7 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	160.00 J	350.00 U	350.00 U
EE5 10-30'	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE5 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U
EE9 10-30'	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U	360.00 U
EE9 30'-GW	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U	350.00 U

LOCATION	BENZO(G,H,I) PERYLENE
EE1 10-30'	340.00 U
EE1 30'-GW	340.00 U
EE2 10-30'	350.00 U
EE2 30'-GW	350.00 U
EE3 10-30'	350.00 U
EE3 30'-GW	350.00 U
EE4 10-20'	340.00 U
EE4 20'-GW	340.00 U
EE5 10-20'	360.00 U
EE5 20'-GW	340.00 U
EE6 10-30'	360.00 U
EE6 30'-GW	350.00 U
EE7 10-30'	340.00 U
EE7 30'-GW	350.00 U
EE6 10-30'	350.00 U
EE8 30'-GW	350.00 U
EE9 10-30'	360.00 U
EE9 30'-GW	350.00 U

RESOURCE RECOVERY CORP., PASCO, WA.
SUMMARY OF PESTICIDE AND PCB RESULTS
FOR SUBSURFACE SEDIMENT SAMPLES COLLECTED JULY/AUGUST 1985
ug/kg DRY WEIGHT

SAMPLE LOCATION	ALPHA-BHC	BETA-BHC	GAMMA-BHC (LINDANE)	HEPTACHLOR	ALDRIN	HEPTACHLOR EPOXIDE	ENDOSULFAN I	DIELDRIN	4,4'-DDE	DELTA-BHC
EE1 10-30'	2.00 U	6.50 R	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	4.00 U	4.00 U	2.00 U
EE1 30'-GW	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	4.00 U	4.00 U	2.00 U
EE2 10-30'	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	9.80 R	2.00 U	4.00 U	4.00 U	2.00 R
EE2 30'-GW	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	12.00 R	2.00 U	4.00 U	4.00 U	3.20 R
EE3 10-30'	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U	8.00 U	8.00 U	4.00 U
EE3 30'-GW	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U	5.00 R	11.00 R	4.00 U
EE4 10-20'	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	8.80 R	2.00 U	4.00 U	4.60 R	2.00 U
EE4 20'-GW	2.60 R	2.00 U	2.00 U	2.00 U	2.00 U	10.00 R	2.00 U	4.00 U	5.30 R	2.20 R
EES 10-20'	2.50 R	2.00 U	2.00 U	2.00 U	2.00 U	12.00 R	2.00 U	4.00 U	5.50 R	2.20 R
EES 20'-GW	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	5.10 R	2.00 U	4.00 U	4.00 U	2.00 U
EE6 10-30'	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	4.00 U	4.00 U	4.00 R
EE6 30'-GW	2.00 U	2.00 U	2.00 R	2.00 U	2.00 U	2.00 U	2.00 U	4.00 U	4.00 U	4.50 R
EE7 10-30'	2.00 U	100.00 R	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	4.00 U	4.00 U	5.50 R
EE7 30'-GW	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	4.00 U	4.00 U	2.00 U
EES 10-30'	2.00 U	7.20 R	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	4.00 U	4.00 U	2.00 U
EE8 30'-GW	2.00 U	24.00 R	2.00 U	9.00 R	2.00 U	6.50 R	2.00 U	4.00 U	4.00 U	3.90 R
EE9 10-30'	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	4.10 R	2.00 U	4.00 U	2.00 U
EE9 30'-GW	2.00 U	2.00 U	2.00 U	6.30 R	2.00 U	6.00 R	2.00 U	4.00 U	4.50 R	3.80 R

LOCATION	ENDRIN	ENDOSULFAN II	4,4'-DDD	ENDRIN ALDEHYDE	ENDOSULFAN SULFATE	4,4'-DDT	ENDRIN KETONE	METHOXY-CHLOR	CHLORDANE	TOXAPHENE
EE1 10-30'	6.50 R	4.00 U	4.00 U	4.00 U	4.00 U	13.00 R	4.00 U	20.00 U	40.00 U	500.00 U
EE1 30'-GW	4.90 R	4.00 U	4.00 U	4.00 U	4.00 U	9.90 R	4.00 U	20.00 U	40.00 U	500.00 U
EE2 10-30'	4.00 U	4.00 U	4.00 U	4.00 U	20.00 R	4.00 U	4.00 U	20.00 U	50.00 U	600.00 U
EE2 30'-GW	4.00 U	4.00 U	12.00 R	4.00 U	33.00 R	4.00 U	4.00 U	20.00 U	60.00 U	700.00 U
EE3 10-30'	8.00 U	8.00 U	8.00 U	8.00 U	130.00 R	8.00 U	8.00 U	75.00 R	40.00 U	80.00 U
EE3 30'-GW	8.00 U	18.00 U	8.00 U	20.00 R	79.00 R	32.00 R	8.00 U	40.00 U	40.00 U	80.00 U
EE4 10-20'	6.20 R	4.00 U	4.00 U	4.00 U	9.20 R	11.00 R	4.00 U	20.00 U	60.00 U	500.00 U
EE4 20'-GW	7.50 R	4.00 U	4.00 U	4.00 U	30.00 R	13.00 R	4.00 U	20.00 U	60.00 U	500.00 U
EES 10-20'	7.50 R	4.00 U	4.00 U	4.00 U	4.00 U	18.00 R	4.00 U	20.00 U	70.00 U	600.00 U
EE8 20'-GW	8.40 R	12.00 R	4.00 U	4.00 U	20.00 R.	11.00 R	4.00 U	20.00 U	60.00 U	500.00 U
EE6 10-30'	6.30 R	4.00 U	4.00 U	4.00 U	52.00 R	12.00 R	4.00 U	20.00 U	40.00 U	600.00 U
EE6 30'-GW	5.70 R	4.00 U	4.00 U	4.00 U	4.00 U	11.00 R	4.00 U	20.00 U	40.00 U	500.00 U
EE7 10-30'	4.00 U	4.00 U	5.10 R	4.00 U	36.00 R	8.40 R	4.00 U	20.00 U	40.00 U	400.00 U
EE7 30'-GW	5.00 R	4.00 U	4.00 U	4.00 U	47.00 R	12.00 R	4.00 U	20.00 U	40.00 U	500.00 U
EE8 10-30'	5.00 R	4.00 U	4.00 U	4.00 U	4.00 U	9.80 R	4.00 U	20.00 U	40.00 U	500.00 U
EE8 30'-GW	4.00 U	4.00 U	4.00 U	4.00 U	43.00 R	11.00 R	4.00 U	20.00 U	40.00 U	600.00 U
EE9 10-30'	5.40 U	4.00 U	4.00 U	4.00 U	69.00 R	15.00 R	4.00 U	20.00 U	40.00 U	800.00 U
EE9 30'-GW	6.80 R	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U	20.00 U	40.00 U	500.00 U

LOCATION	AROCLOR-1016	AROCLOR-1221	AROCLOR-1232	AROCLOR-1242	AROCLOR-1248	AROCLOR-1254	AROCLOR-1260
EE1 10-30'	40.00 U	70.00 U	70.00 U	60.00 U	60.00 U	100.00 U	80.00 U
EE1 30'-GW	40.00 U	70.00 U	70.00 U	60.00 U	60.00 U	100.00 U	80.00 U
EE2 10-30'	40.00 U	60.00 U	70.00 U	40.00 U	50.00 U	100.00 U	100.00 U
EE2 30'-GW	50.00 U	80.00 U	90.00 U	50.00 U	60.00 U	200.00 U	100.00 U
EE3 10-30'	40.00 U	40.00 U	40.00 U	3100.00 J	40.00 U	1400.00 J	80.00 U
EE3 30'-GW	40.00 U	40.00 U	40.00 U	140.00 R	40.00 U	80.00 U	80.00 U
EE4 10-20'	40.00 U	70.00 U	80.00 U	50.00 U	50.00 U	100.00 U	100.00 U
EE4 20'-GW	40.00 U	70.00 U	80.00 U	50.00 U	50.00 U	100.00 U	100.00 U
EE8 10-20'	60.00 U	90.00 U	100.00 U	60.00 U	60.00 U	200.00 U	100.00 U
EE8 20'-GW	50.00 U	70.00 U	80.00 U	40.00 U	50.00 U	100.00 U	100.00 U
EE6 10-30'	40.00 U	70.00 U	70.00 U	70.00 U	70.00 U	100.00 U	80.00 U
EE6 30'-GW	40.00 U	70.00 U	70.00 U	60.00 U	60.00 U	100.00 U	80.00 U
EE7 10-30'	40.00 U	70.00 U	70.00 U	60.00 U	60.00 U	100.00 U	80.00 U
EE7 30'-GW	40.00 U	70.00 U	70.00 U	60.00 U	60.00 U	100.00 U	80.00 U
EE8 10-30'	40.00 U	70.00 U	70.00 U	60.00 U	60.00 U	100.00 U	80.00 U
EE8 30'-GW	40.00 U	70.00 U	70.00 U	70.00 U	60.00 U	100.00 U	80.00 U
EE9 10-30'	40.00 U	70.00 U	70.00 U	70.00 U	70.00 U	100.00 U	80.00 U
EE9 30'-GW	40.00 U	70.00 U	70.00 U	60.00 U	60.00 U	100.00 U	80.00 U

RESOURCE RECOVERY CORP., PASCO, WA.
SUMMARY OF HERBICIDE RESULTS FOR SUBSURFACE SEDIMENT SAMPLES
COLLECTED JULY/AUGUST 1985
(ug/kg) DRY WEIGHT

SAMPLE	PARAMETER			
LOCATION	2,4-D	2,4,5-T	2,4,5-TP	MCPA
EE1 10-30 FT.	10U	5U	*	300U
EE1 30-GW	10U	5U	*	150U
EE2 10-30	25U	15U	15U	600U
EE2 30-GW	2U	1U	1U	40U
EE3 10-30	200U	100U	*	4700U
EE3 30-GW	320U	160U	*	200U
EE4 10-20	5U	3U	*	100U
EE4 20-GW	5U	3U	*	110U
EE5 10-20	5U	3U	*	110U
EE5 20-GW	10U	5U	*	200U
EE6 10-30	10U	5U	*	150U
EE6 30-GW	500U	250U	*	12000U
EE7 10-30	20U	10U	*	1100U
EE7 30-GW	10U	5U	*	500U
EE5 10-30	10U	5U	*	200U
EE8 30-GW	10U	5U	*	50U
EE9 10-30	50U	25U	*	1100U
EE9 30-GW	30U	15U	*	600U

RESOURCE RECOVERY CORP., PASCO, WA.
SUMMARY OF TENTATIVELY IDENTIFIED BASE/NEUTRAL/ACID COMPOUNDS
FOR SUBSURFACE SEDIMENT SAMPLES COLLECTED JULY/AUGUST 1985
(ug/kg)

COMPOUND	SCAN	EE3 10-30'	EE3 20-GW	EES 10-30'	EE9 30-GW
UNKNOWN	315	4200 J			
DIMETHYL BENZENE ISOMER	343	1700 J			
DIMETHYL BENZENE ISOMER	376	1200 J			
UNKNOWN	413	4600 J			
1-ETHYL-2-METHYL BENZENE	471	860 J			
TRIMETHYL BENZENE	510	1300 J			
DECANE	524	1800 J			
P-PHOSPHORIC ACID,TRIBUTYL ESTER	1106	1700 J			
UNKNOWN	1317	5900 J			
UNKNOWN	1333	2000 J			
UNKNOWN	1391	4200 J			
UNKNOWN	1424	7700 J			
UNKNOWN HYDROCARBON	636	2900 J			
UNKNOWN	1436	5000 J			
UNKNOWN	1453	1800 J			
UNKNOWN	1491	9400 J			
UNKNOWN	1505	2300 J			
UNKNOWN	1520	2400 J			
UNKNOWN	1542	3000 J			
2-BUTOXY ETHANOL	400		520 J		
UNKNOWN	1310		260 J		
UNKNOWN	1421			200 J	
UNKNOWN	416				220 J

RESOURCE RECOVERY CORP., PASCO, WA.
SUMMARY OF INORGANIC RESULTS FOR SOIL/SEDIMENT SAMPLES
COLLECTED JULY/AUGUST 1985
(mg/kg) DRY WEIGHT

LOCATION	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER
EE1 10-30'	7315.00	6.00U	5.70	110.00	0.50	1.00U	12938.00	11.00	13.00	12.00
EE1 30-GW	6686.00	10.00	3.20U	101.00	0.50	1.00U	14123.00	10.00	13.00	11.00
EE2 10-30'	6888.00	6.00U	3.20U	97.00	0.50	1.00U	8862.00	10.00	11.00	11.00
EE2 30-GW	4728.00	8.00J	3.30U	81.00	0.40	1.00U	8247.00	7.00	11.00	11.00
EE3 10-30'	7692.00	7.00U	3.40U	114.00	0.30U	1.40	11516.00	28.00	11.00	19.00
EE3 30-GW	5346.00	6.00U	3.20U	92.00	0.30	1.00U	9899.00	7.00	13.00	12.00
EE4 10-20'	8810.00	8.00U	3.90U	119.00	0.60	1.20U	11785.00	12.00	14.00	12.00
EE4 20-GW	4831.00	6.00U	3.20U	88.00	0.30U	1.00U	9354.00	4.00	12.00	13.00
EES 10-20'	8934.00	7.00U	7.10	119.00	0.60	1.00U	15703.00	13.00	13.00	12.00
EES 20-GW	4671.00	6.00U	3.20U	79.00	0.40	1.00U	7616.00	6.00	11.00	10.00
EES 10-30'	8332.00	4.00J	3.20U	106.00	0.80U	2.00U	12054.00	12.00	13.00	12.00
EE6 30-GW	7457.00	7.00U	3.30U	104.00	0.60	1.30	10995.00	10.00	15.00	11.00
EE7 10-30'	8712.00	8.00J	3.30U	103.00	0.50	1.00U	13000.00	12.00	13.00	17.00
EE7 30-GW	6140.00	6.00U	3.30U	112.00	0.30	1.00U	11285.00	8.00	11.00	14.00
EE8 10-30'	7046.00	6.00U	3.30U	104.00	0.50	1.00U	11053.00	12.00	12.00	10.00
EE8 30-GW	6215.00	6.00U	3.30U	99.00	0.50	1.10	10414.00	9.00	13.00	12.00
EE9 10-30'	7087.00	7.00U	3.30U	652.00	0.50	1.00U	10603.00	11.00	12.00	12.00
EE9 30-GW	5785.00	6.00U	3.30U	111.00	0.40	1.00U	10081.00	8.00	13.00	11.00

LOCATION	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM
EE1 10-30'	22753.00	5.70	6962.00	439.00	0.10U	5.00U	2551.00	1.80U	2.50	539.00
EE1 30-GW	23483.00	4.50	6210.00	377.00	0.10U	5.00U	2465.00	1.80U	3.20	535.00
EE2 10-30'	20000.00	5.90	5846.00	411.00	0.10U	9.00U	2610.00	1.90U	2.60	522.00
EE2 30-GW	21334.00	3.20	4549.00	345.00	0.10U	9.00U	1508.00	1.90U	2.30	592.00
EE3 10-30'	22319.00	100.00	6308.00	407.00	0.20	9.00U	2491.00	1.90U	1.50	647.00
EE3 30-GW	23074.00	6.20	4753.00	399.00	0.10U	9.00	1935.00	1.80U	1.90U	580.00
EE4 10-20'	27462.00	5.80	6943.00	485.00	0.10U	10.00U	2942.00	2.20U	2.70	665.00
EE4 20-GW	21375.00	3.60	4524.00	375.00	0.10U	8.00U	1711.00	9.00U	1.70U	528.00
EE5 10-20'	24879.00	8.10	8363.00	486.00	0.10U	14.00	2929.00	1.90U	2.80	725.00
EE5 20-GW	21489.00	2.90	4523.00	313.00	0.10U	5.00U	1888.00	1.50U	2.60	591.00
EE6 10-30'	24587.00	6.30	7076.00	447.00	0.20U	9.00	2523.00	4.00U	1.90	835.00
EE6 30-GW	26310.00	4.30	6043.00	447.00	0.10U	9.00U	2507.00	1.90U	3.40	669.00
EE7 10-30'	25832.00	9.70	7223.00	457.00	0.10U	11.00	2683.00	9.50U	2.50	726.00
EE7 10-GW	20780.00	3.80	5769.00	455.00	0.10U	9.00U	2515.00	1.90U	1.90	605.00
EE5 10-30'	20929.00	5.20	6165.00	398.00	0.10U	9.00U	2740.00	1.90U	3.50	562.00
EE5 30-GW	23027.00	4.50	5876.00	422.00	0.10U	9.00U	2225.00	1.90U	2.80	555.00
EE9 10-30'	21375.00	4.70	6283.00	390.00	0.60	9.00U	2761.00	1.90U	3.30	1406.00
EE9 30-GW	22263.00	4.40	5543.00	378.00	0.20	9.00U	2191.00	1.90U	2.20	605.00

LOCATION	THALLIUM	TIN	VANADIUM	ZINC	CYANIDE
EE1 10-30'	2.00 U	9.00 U	43.10	54.00	*
EE1 30-GW	2.00 U	10.00 U	47.00	50.00	*
EE2 10-30'	2.00 U	10.00 U	38.90	53.00	*
EE2 30-GW	2.00 U	10.00 U	40.50	43.00	*
EE3 10-30'	2.00 U	10.00 U	40.00	76.00	*
EE3 30-GW	2.00 U	10.00 U	45.00	45.00	*
EE4 10-20'	3.00 U	11.00 U	61.30	58.00	*
EE4 20-GW	2.00 U	9.00 U	42.30	42.00	*
EE6 10-20'	2.00 U	10.00 U	45.90	59.00	*
EE6 20-GW	2.00 U	9.00 U	41.80	40.00	*
EE6 10-30'	5.00 U	10.00 U	48.80	68.00	*
EE6 30-GW	2.00 U	10.00 U	56.80	56.00	*
EE7 10-30'	2.00 U	10.00 U	49.30	218.00	*
EE7 30-GW	2.00 U	10.00 U	35.70	59.00	*
EE6 10-30'	2.00 U	10.00 U	42.40	49.00	*
EE6 30-GW	2.00 U	10.00 U	46.00	47.00	*
EE9 10-30'	2.00 U	10.00 U	43.60	49.00	*
EE9 30-GW	2.00 U	10.00 U	43.90	47.00	*

APPENDIX G

GROUND WATER ANALYTICAL RESULTS

Explanation of data modifiers:

U:	undetected at specified level
J:	estimated concentration only
R:	value rejected during Quality Assurance review
*:	not analyzed for
SCAN:	Relative Retention Time Indicator

RESOURCE RECOVERY CORP., PASCO, WA.
SUMMARY OF VOLATILE ORGANIC COMPOUND RESULTS
FOR GROUNDWATER SAMPLES COLLECTED JULY/AUGUST 1985
(ug/l)

LOCATION	CHLOROMETHANE	BROMOMETHANE	VINYL CHLORIDE	CHLOROETHANE	METHYLENE CHLORIDE	ACETONE	CARBON DISULFIDE	1,1-DICHLORO ETHANE	1,1-DICHLORO ETHANE
EE1	50.00 U	50.00 U	50.00 U	50.00 U	15.00 U	765.00	25.00 U	25.00 U	25.00 U
EE2	10.00 U	10.00 U	10.00 U	10.00 U	2.00 U	84.00 U	5.00 U	5.00	15.00
EE3	100.00 U	100.00 U	100.00 U	100.00 U	60.00 U	350.00	50.00 U	50.00 U	64.00
EE4	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	330.00	5.00 U	5.00 U	5.00 U
EE5	10.00 U	10.00 U	10.00 U	10.00 U	5.00 U	3.60 J	5.00 U	5.00 U	5.00 U
EE5	100.00 U	100.00 U	100.00 U	100.00 U	40.00	710.00	50.00 U	50.00 U	50.00 U
EE7	200.00 U	200.00 U	200.00 U	200.00 U	72.00	10400.00 U	100.00 U	100.00 U	100.00 U
EE8	10.00 U	10.00 U	10.00 U	10.00 U	5.00 U	10.00 U	5.00 U	5.00 U	5.00 U
EE9	10.00 U	10.00 U	10.00 U	10.00 U	5.00 U	10.00 U	5.00 U	5.00 U	5.00 U
JUB CNTR	10.00 U	10.00 U	10.00 U	10.00 U	5.00 U	354.00	5.00 U	5.00 U	5.00 U
JUB 1	10.00 U	10.00 U	10.00 U	10.00 U	5.00 U	47.00	5.00 U	5.00 U	5.00 U
JUB 2	10.00 U	10.00 U	10.00 U	10.00 U	1.00 U	48.00	5.00 U	13.00	35.00
JUB 3	10.00 U	10.00 U	10.00 U	10.00 U	5.00 U	1.30 J	5.00 U	5.00 U	5.00 U
JUB 4	10.00 U	10.00 U	10.00 U	10.00 U	5.00 U	4.80 J	5.00 U	5.00 U	5.00 U
WSW	10.00 U	10.00 U	10.00 U	10.00 U	5.00 U	4.40 J	5.00 U	5.00 U	5.00 U

LOCATION	TRAN5-1,2-DI CHLOROETHENE	CHLOROFORM	1,2-DICHLORO ETHANE	2-BUTANONE	1,1,1-TRI CHLOROETHANE	CARBON TETRA CHLORIDE	VINYL ACETATE	BROMODICHLORO METHANE	1,1,2,2-TETRA CHLOROETHANE
EE1	25.00 U	25.00 U	25.00 U	50.00 U	25.00 U	25.00 U	50.00 U	25.00 U	25.00 U
EE2	9.00	3.00	5.00 U	10.00 U	70.00	5.00 U	10.00 U	5.00 U	5.00 U
EE3	50.00 U	50.00 U	50.00 U	100.00 U	420.00	50.00 U	100.00 U	50.00 U	50.00 U
EE4	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U
EE5	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U
EE5	50.00 U	50.00 U	50.00 U	100.00 U	50.00 U	50.00 U	100.00 U	50.00 U	50.00 U
EE7	100.00 U	100.00 U	100.00 U	200.00 U	100.00 U	100.00 U	200.00 U	100.00 U	100.00 U
EE5	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U
EE9	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U
JUB CNTR	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U
JUB 1	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U
JUB 2	15.00	17.00	4.60 J	10.00 U	168.00	5.00 U	10.00 U	5.00 U	5.00 U
JUB 3	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U
JUB 4	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U
W5W	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U	10.00 U	5.00 U	5.00 U

LOCATION	1,2-DICHLORO PROPANE	TRANS-1,3-DI CHLOROPROPENE	TRICHLORO ETHENE	DIBROMOCHLORO METHANE	1,1,2-TRI CHLOROETHANE	BENZENE	CIS-1,3-DI CHLOROPROPENE	2-CHLOROETHYL VINYL ETHER	BROMOFORM
EE1	25.00 U	25.00 U	25.00 U	25.00 U	25.00 U	25.00 U	25.00 U	50.00 U	25.00 U
EE2	5.00 U	5.00 U	65.00	5.00 U	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U
EE3	50.00 U	50.00 U	480.00	50.00 U	50.00 U	50.00 U	50.00 U	100.00 U	50.00 U
EE4	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U
EES	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U
EES	50.00 U	50.00 U	50.00 U	50.00 U	50.00 U	50.00 U	50.00 U	100.00 U	50.00 U
EE7	100.00 U	100.00 U	100.00 U	100.00 U	100.00 U	100.00 U	100.00 U	200.00 U	100.00 U
EE8	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U
EE9	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U
JUB CNTR	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U
JUB 1	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U
JUB 2	5.00 U	5.00 U	164.00	5.00 U	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U
JUB 3	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U
JUB 4	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U
WSW	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	10.00 U	5.00 U

LOCATION	2-HEXANONE	4-METHYL-2-PENTANONE	TETRACHLORO ETHYLENE	TOLUENE	CHLOROBENZENE	ETHYL BENZENE	STYRENE	TOTAL XYLENES
EE1	50.00 U	50.00 U	25.00 U	25.00 U	25.00 U	25.00 U	25.00 U	25.00 U
EE2	10.00 U	10.00 U	32.00	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
EE3	100.00 U	100.00 U	50.00 U	230.00	50.00 U	50.00 U	50.00 U	63.00
EE4	10.00 U	10.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
EE5	10.00 U	10.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
EE6	100.00 U	100.00 U	50.00 U	50.00 U	50.00 U	50.00 U	50.00 U	50.00 U
EE7	200.00 U	200.00 U	100.00 U	100.00 U	100.00 U	100.00 U	100.00 U	100.00 U
EE8	10.00 U	10.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
EE9	10.00 U	10.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
JUB CNTR	10.00 U	10.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
JUB 1	10.00 U	10.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
JUB 2	10.00 U	10.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
JUB 3	10.00 U	10.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
JUB 4	10.00 U	10.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
WSW	10.00 U	10.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U

RESOURCE RECOVERY CORP., PASCO, WA.
SUMMARY OF BASE/NEUTRAL/ACID COMPOUND RESULTS
FOR GROUNDWATER SAMPLES COLLECTED JULY/AUGUST 1985
(ug/l)

LOCATION	N-NITROSO DIMETHYLAMINE	PHENOL	ANILINE	BIS(2-CHLORO ETHYL)ETHER	2-CHLOROPHENOL	1,3-DICHLORO BENZENE	1,4-DICHLORO BENZENE	BENZYL ALCOHOL
EE1	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
EE2	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
EE3	20.00 U	20.00 R	20.00 U	20.00 U	20.00 R	20.00 U	20.00 U	20.00 U
EE4	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
EE5	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
EE6	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
EE7	24.00 R	24.00 U	24.00 R	24.00 R	24.00 U	24.00 R	24.00 R	24.00 R
EE8	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
EE9	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
JUB CNTR	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB1	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB2	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB3	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB4	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
WSW	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U

LOCATION	1,2-DICHLORO BENZENE	2-METHYLPHENOL	BIS(2CHLOROISO PROPYL)ETHER	4-METHYL PHENOL	N-NITROSO DIPROPYLAMINE	HEXACHLORO ETHANE	NITROBENZENE	ISOPHORONE
EE1	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
EE2	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
EE3	20.00 U	20.00 R	20.00 U	6.00 J	10.00 U	10.00 U	10.00 U	10.00 U
EE4	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
EES	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
EES	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
EE7	24.00 R	24.00 U	24.00 R	24.00 U	24.00 R	24.00 R	24.00 R	24.00 R
EE8	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
EE9	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
JUB CNTR	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB1	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB2	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB3	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB4	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
WSW	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U

LOCATION	2-NITROPHENOL	2,4-DIMETHYL PHENOL	BENZOIC ACID	BI5(2-CHLORO ETHOXY)METHANE	2,4-DICHLORO PHENOL	1,2,4-TRI CHLOROBENZENE	NAPHTHALENE	4-CHLORO ANILINE
EE1	20.00 U	20.00 U	100.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
EE2	20.00 U	20.00 U	100.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
EE3	10.00 R	10.00 R	100.00 R	20.00 U	20.00 R	20.00 U	20.00 U	20.00 U
EE4	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
EE5	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
EE5	20.00 U	20.00 U	100.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
EE7	24.00 U	24.00 U	118.00 U	24.00 R	24.00 U	24.00 R	24.00 R	24.00 R
EE8	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
EE9	20.00 U	20.00 U	100.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
JUB CNTR	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB 1	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB 2	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB 3	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB 4	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
W5W	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U

LOCATION	HEXACHLORO BUTADIENE	4-CHLORO-3-METHYLPHENOL	2-METHYL NAPHTHALENE	HEXACHLOROCY CLOPENTADIENE	2,4,6-TRI CHLOROPHENOL	2,4,5-TRI CHLOROPHENOL
EE1	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	100.00 U
EE2	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	100.00 U
EE3	20.00 U	20.00 R	20.00 U	20.00 U	20.00 R	100.00 R
EE4	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U
EE5	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U
EE6	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	100.00 U
EE7	24.00 R	24.00 U	24.00 R	24.00 R	24.00 U	118.00 U
EE8	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U
EE9	20.00 U	20.00 U	10.00 U	10.00 U	10.00 U	50.00 U
JUB CNTR	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U
JUB 1	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U
JUB 2	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U
JUB 3	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U
JUB 4	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U
W5W	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U

LOCATION	2-CHLORO NAPHTHALENE	2-NITROANILINE	DIMETHYL PHTHALATE	ACENAPHTHYLENE	3-NITROANILINE	ACENAPHTHENE	2,4-DINITRO PHENOL
EE1	20.00 U	100.00 U	20.00 U	20.00 U	100.00 U	20.00 U	100.00 U
EE2	20.00 U	100.00 U	20.00 U	20.00 U	100.00 U	20.00 U	100.00 U
EE3	20.00 U	100.00 U	20.00 U	20.00 U	100.00 U	20.00 U	100.00 R
EE4	10.00 U	50.00 U	10.00 U	10.00 U	50.00 U	10.00 U	50.00 U
EE5	10.00 U	50.00 U	10.00 U	10.00 U	50.00 U	10.00 U	50.00 U
EE5	20.00 U	100.00 U	20.00 U	20.00 U	100.00 U	20.00 U	100.00 U
EE7	24.00 R	118.00 R	24.00 R	24.00 R	118.00 R	24.00 R	59.00 U
EE8	10.00 U	50.00 U	10.00 U	10.00 U	50.00 U	10.00 U	50.00 U
EE9	10.00 U	50.00 U	10.00 U	10.00 U	100.00 U	20.00 U	100.00 U
JUB CNTR	10.00 U	50.00 U	10.00 U	10.00 U	50.00 U	10.00 U	50.00 U
JUB 1	10.00 U	50.00 U	10.00 U	10.00 U	50.00 U	10.00 U	50.00 U
JUB 2	10.00 U	50.00 U	10.00 U	10.00 U	50.00 U	10.00 U	50.00 U
JUB 3	10.00 U	50.00 U	10.00 U	10.00 U	50.00 U	10.00 U	50.00 U
JUB 4	10.00 U	50.00 U	10.00 U	10.00 U	50.00 U	10.00 U	50.00 U
W5W	10.00 U	50.00 U	10.00 U	10.00 U	50.00 U	10.00 U	50.00 U

LOCATION	4-NITROPHENOL	DIBENZOFURAN	2,4-DINITRO TOLUENE	2,6-DINITRO TOLUENE	DIETHYL PHTHALATE	4-CHLOROPHENYL PHENYL ETHER	FLUORENE	4-NITROANILENE
EE1	100.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	100.00 U
EE2	100.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	100.00 U
EE3	100.00 R	20.00 U	20.00 R	20.00 U	20.00 U	20.00 U	20.00 U	100.00 U
EE4	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U
EE5	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U
EE6	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	100.00 U
EE7	59.00 U	24.00 R	24.00 R	24.00 R	24.00 R	24.00 R	24.00 R	118.00 R
EE5	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U
EE9	100.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	100.00 U
JUB CNTR	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U
JUB 1	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U
JUB 2	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U
JUB 3	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U
JUB 4	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U
W5W	50.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	50.00 U

LOCATION	4,6-DINITRO-2 METHYLPHENOL	N-NITROSODI PHENYLAMINE	4-BROMOPHENYL PHENYL ETHER	HEXACHLORO BENZENE	PENTACHLORO PHENOL	PHENANTHRENE	ANTHRACENE	DI-N-BUTYL PHTHALATE
EE1	100.00 U	20.00 U	20.00 U	20.00 U	118.00 U	20.00 U	20.00 U	20.00 U
EE2	100.00 U	20.00 U	20.00 U	20.00 U	100.00 U	20.00 U	20.00 U	20.00 U
EE3	100.00 R	20.00 U	20.00 U	20.00 U	20.00 R	20.00 U	20.00 U	20.00 U
EE4	50.00 U	10.00 U	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U
EE5	50.00 U	10.00 U	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U
EE5	100.00 U	20.00 U	10.00 U	10.00 U	100.00 U	10.00 U	20.00 U	20.00 U
EE7	118.00 R	24.00 R	24.00 R	24.00 R	118.00 U	24.00 R	24.00 R	24.00 R
EE5	50.00 U	10.00 U	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U
EE9	100.00 U	20.00 U	20.00 U	20.00 U	50.00 U	20.00 U	20.00 U	20.00 U
JUB CNTR	50.00 U	10.00 U	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U
JUB 1	50.00 U	10.00 U	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U
JUB 2	50.00 U	10.00 U	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U
JUB 3	50.00 U	10.00 U	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U
JUB 4	50.00 U	10.00 U	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U
WSW	50.00 U	10.00 U	10.00 U	10.00 U	50.00 U	10.00 U	10.00 U	10.00 U

LOCATION	FLUORANTHENE	BENZIDINE	PYRENE	BUTYL BENZYL PHTHALATE	3,3'-DICHLORO BENZIDINE	BENZO(A) ANTHRACENE	BIS(2-ETHYL HEXYL)PHTHALATE	CHRYSENE	DI-N-OCTYL PHTHALATE
EE1	20.00 U	160.00 U	20.00 U	20.00 U	40.00 U	20.00 U	44.00 U	20.00 U	10.00 U
EE2	20.00 U	160.00 U	20.00 U	20.00 U	40.00 U	20.00 U	6.00 J	20.00 U	20.00 U
EE3	20.00 U	160.00 U	20.00 U	20.00 U	40.00 U	20.00 U	10.00 U	20.00 U	20.00 U
EE4	10.00 U	50.00 U	10.00 U	10.00 U	20.00 U	10.00 U	39.00	10.00 U	10.00 U
EES	10.00 U	50.00 U	10.00 U	10.00 U	20.00 U	10.00 U	7.80 J	10.00 U	10.00 U
EE6	20.00 U	100.00 U	10.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	6.00 U
EE7	24.00 R	118.00 R	24.00 R	24.00 R	48.00 R	24.00 R	18.00 U	24.00 R	24.00 R
EE8	10.00 U	50.00 U	10.00 U	10.00 U	20.00 U	10.00 U	10.00 U	10.00 U	10.00 U
EE9	20.00 U	160.00 U	20.00 U	20.00 U	40.00 U	20.00 U	40.00 U	20.00 U	12.00 U
JUB CNTR	10.00 U	50.00 U	10.00 U	10.00 U	20.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB 1	10.00 U	50.00 U	10.00 U	10.00 U	20.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB 2	10.00 U	50.00 U	10.00 U	10.00 U	20.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB 3	10.00 U	50.00 U	10.00 U	10.00 U	20.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB 4	10.00 U	100.00 U	10.00 U	10.00 U	20.00 U	10.00 U	10.00 U	10.00 U	10.00 U
WSW	10.00 U	100.00 U	10.00 U	10.00 U	20.00 U	10.00 U	10.00 U	10.00 U	10.00 U

LOCATION	BENZO(B) FLUORANTHENE	BENZO(K) FLUORANTHENE	BENZO(A)PYRENE	INDENO(1,2,3-CO)PYRENE	DIBENZ(A,H) ANTHRACENE	BENZO(G,H,I) PERYLENE
EE1	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
EE2	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
EE3	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
EE4	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
EE5	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
EE6	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
EE7	24.00 R	24.00 R	24.00 R	24.00 R	24.00 R	24.00 R
EE5	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
EE9	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U	20.00 U
JUB CNTR	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB 1	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB 2	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB 3	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
JUB 4	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U
W5W	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U	10.00 U

RESOURCE RECOVERY CORP., PASCO, WA.
SUMMARY OF PESTICIDE AND PCB/RESULTS FOR
GROUNDWATER SAMPLES COLLECTED JULY/AUGUST 1985
(ug/l)

LOCATION	ALPHA-BHC	BETA-BHC	DELTA-BHC	GAMMA-BHC (LINDANE)	HEPTACHLOR	ALDRIN	HEPTACHLOR EPOXIDE	ENDOSULFAN I	DIELDRIN	4,4'-DDE
EE1	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.10 U	0.10 U
EE2	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.10 U	0.10 U
EE3	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.10 U	0.10 U
EE4	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.10 U	0.10 U
EES	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.10 U	0.10 U
EES	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.10 U	0.10 U
EE7	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.10 U	0.10 U
EES	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.11 U	0.11 U
EE9	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.11 U	0.11 U
JUB CNTR	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.10 U	0.10 U
JUB 1	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.10 U	0.10 U
JUB 2	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.10 U	0.10 U
JUB 3	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.10 U	0.10 U
JUB 4	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.10 U	0.10 U
WSW	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.10 U	0.10 U

LOCATION	ENDRIN	ENDOSULFAN II	4,4'-DDD	ENDRIN ALDEHYDE	ENDOSULFAN SULFATE	4,4'-DDT	ENDRIN KETONE	METHOXY-CHLOR	CHORDANE	TOXAPHENE
EE1	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.50 U	0.50 U	1.00 U
EE2	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.50 U	0.50 U	1.00 U
EE3	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.50 U	0.50 U	1.00 U
EE4	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.50 U	0.50 U	1.00 U
EES	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.50 U	0.50 U	1.00 U
EES	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.50 U	0.50 U	1.00 U
EE7	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.50 U	0.50 U	1.00 U
EE8	0.11 UJ	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.60 U	0.60 U	1.10 U
EE9	0.11 UJ	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.60 U	0.60 U	1.10 U
JUB CNTR	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.50 U	0.50 U	1.00 U
JUB 1	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.50 U	0.50 U	1.00 U
JUB 2	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.50 U	0.50 U	1.00 U
JUB 3	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.50 U	0.50 U	1.00 U
JUB 4	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.50 U	0.50 U	1.00 U
WSW	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.50 U	0.50 U	1.00 U

LOCATION	AROCLOR-1016	AROCLOR-1221	AROCLOR-1232	AROCLOR-1242	AROCLOR-1248	AROCLOR-1254	AROCLOR-1260
EE1	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	1.00 U
EE2	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	1.00 U
EE3	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	1.00 U
EE4	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	0.50 U
EE5	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	0.50 U
EE6	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	1.00 U
EE7	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	1.00 U
EE8	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U	1.10 U	1.10 U
EE9	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U	1.10 U	0.60 U
JUB CNTR	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	0.50 U
JUB 1	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	1.00 U
JUB 2	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	0.50 U
JUB 3	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	0.50 U
JUB 4	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	0.50 U
W5W	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.00 U	1.00 U

RESOURCE RECOVERY CORP., PASCO, WA.
SUMMARY OF HERBICIDE RESULTS FOR GROUNDWATER SAMPLES
COLLECTED JULY/AUGUST 1985
(ug/1)

SAMPLE	PARAMETER			
LOCATION	2,4-D	2,4,5-T	2,4,5-TP	MCPA
EE1	1U	1U	*	2U
EE2	1U	1U	1U	2U
EE3	1U	1U	1U	2U
EE4	1U	1U	*	2U
EES	1U	1U	*	2U
EES	1U	1U	*	2U
EE7	1U	1U	*	2U
EE8	1U	1U	*	2U
EE9	1U	1U	*	2U
JUB CONTROL	1U	1U	1U	2U
JUB 1	1U	1U	1U	2U
JUB 2	1U	1U	1U	2U
JUB 3	1U	1U	1U	2U
JUB 4	1U	1U	1U	1U
WSW	1U	1U	1U	2U

RESOURCE RECOVERY CORP., PASCO, WA.
SUMMARY OF TENTATIVELY IDENTIFIED BASE/NEUTRAL/ACID COMPOUNDS FOR
GROUNDWATER SAMPLES COLLECTED JULY/AUGUST 1985
(ug/1)

LOCATION:		EE1	EE2	EE3	EE4	EE8	EE8	EE7	EE8	EE9	JUB CNTR	JUB1	JUB2	JUB3	JUB4	WSW
COMPOUND	SCAN															
ALCOHOL	431	190J														
ALCOHOL	518	20J														
ALKENE	663	600J	16J				62J									
HYDROCARBON	704	22J														
CARBOXYLIC ACID	914	12J														
CARBOXYLIC ACID	954	94J														
UNK.	2078	26J	8J	4J		15J	68J	12J								
SATURATED HYDROCARBON	965		22J													
UNK.	1812		6J													
DIMETHYL BENZENE	406			696J												
DIMETHYL BENZENE	445			364J												
ALKYL BENZENE	499			12J												
SUBSTITUTED BENZENE	546			26J												
ALKYL BENZENE	559			120J												
TRIMETHYL BENZENE	569			42J												
METHYL KETONE	576			6J												
ALKYL BENZENE	586			40J												
ALKYL BENZENE	606			84J												
ALKYL BENZENE	648			20J												
ALKYL BENZENE	665			6J												

SUMMARY OF TENTATIVELY IDENTIFIED BASE/NEUTRAL/ACID COMPOUNDS (CONT.)

LOCATION: COMPOUND	SCAN	EE1	EE2	EE3	EE4	EES	EES	EE7	EES	EE9	JUB CNTR	JUB1	JUB2	JUB3	JUB4	WSW
SUBSTITUTED ALKANE	670			16J												
SUBSTITUTED ALKANE	879			SJ												
KETONE	934			16J												
KETONE	960						160J									
UNK.	1487						12J									
SUBST. CARBOXYLIC ACID	964							ISSJ								
UNKNOWN	1563								14J							
UNKNOWN	2036								SJ							
PHTHALATE	2150								SJ							
UNKNOWN	1166									ISJ						
UNKNOWN	1323									SJ						
UNKNOWN	2035									4J						
UNKNOWN	394				6.7J											
HYDROCARBON	232				IIJ											
UNKNOWN	1183				27J											
HEXADECANOIC ACID	1502				ISJ											
UNKNOWN	1635				22J											
UNKNOWN	1638				2SJ											
CARBOXYLIC ACID	1654										7.6J	6.2J		4.SJ	5.6J	
C-3 SUBST. BENZENE	468											6.2J		4.SJ	7.2J	
C-2 SUBST. BENZENE	343												13J			

RESOURCE RECOVERY CORP., PASCO, WA.
SUMMARY OF INORGANIC RESULTS FOR GROUND WATER SAMPLES COLLECTED
JULY/AUGUST 1985
(ug/l)

LOCATION	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER
EE1 BKGRD.	2413.00	12.00 U	10.00 U	103.00	0.50 U	1.90 U	57990.00	24.00	3.90 U	10.00
EE2	70420.00	19.00 J	10.00 U	1929.00	4.50	2.30	190000.00	134.00	102.00	191.00
EE3	8983.00	12.00 U	10.00 U	297.00	0.50 U	1.90 U	101500.00	48.00	15.00	22.00
EE4	4846.00	12.00 U	10.00 U	154.00	1.20	3.50	65940.00	16.00	5.00	13.00
EES	51330.00	12.00 U	10.00 U	2148.00	4.30	2.90	145500.00	83.00	70.00	118.00
EE6	22560.00	16.00 J	10.00 U	400.00	1.10	2.70	70920.00	51.00	32.00	82.00
EE7	9291.00	12.00 U	10.00 U	235.00	0.50 U	1.90 U	65910.00	62.00	12.00	40.00
EE8	18320.00	12.00 U	10.00 U	526.00	2.10	1.90 U	80770.00	62.00	25.00	45.00
EE9	26390.00	12.00 U	11.40 J	773.00	2.70	1.90 U	94780.00	72.00	38.00	62.00
JUB WELL 1	37210.00	12.00 U	10.00 U	896.00	3.10	2.80	101100.00	60.00	67.00	103.00
JUB WELL 2	46670.00	12.00 U	12.00	834.00	3.60	1.90 U	116100.00	71.00	87.00	109.00
JUB WELL 3	17030.00	12.00 U	10.00 U	350.00	1.70	1.90 U	77740.00	31.00	23.00	33.00
JUB WELL 4	40180.00	12.00 U	40.00	838.00	3.00	1.90 U	100700.00	51.00	44.00	77.00
JUB CNTR.	129800.00	12.00 U	37.20	1656.00	10.40	1.90 U	332200.00	176.00	184.00	254.00
WSW	61.00	12.00 U	10.00 U	63.00	0.60	1.90 U	57180.00	11.00	3.90 U	1.70

LOCATION	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM
EE1 BKGRO.	4349.00	5.00 R	21880.00	147.00	0.18 U	24.00	8561.00	25.00 U	3.30 U	35780.00
EE2	167600.00	36.20 R	64500.00	3631.00	0.20	131.00	20700.00	25.00 U	7.80	47580.00
EE3	27090.00	5.90 R	27570.00	2698.00	0.18 U	21.00	11690.00	25.00 U	3.30 U	31920.00
EE4	10630.00	10.50	21330.00	244.00	0.40 U	19.00	7563.00	25.00 U	4.00	32540.00
EES	123700.00	17.90	49050.00	2736.00	0.20 U	80.00	13800.00	25.00 U	7.60	37270.00
EES	52150.00	29.10 R	29930.00	1488.00	0.18 U	50.00	9989.00	25.00 U	3.30 U	36130.00
EE7	21750.00	17.90 R	24040.00	709.00	0.18 U	46.00	8855.00	25.00 U	3.30 U	35220.00
EES	39950.00	84.00 R	29600.00	887.00	0.18 U	46.00	9272.00	25.00 U	6.40	34140.00
EE9	61640.00	33.60 R	31280.00	1264.00	0.30	78.00	12880.00	25.00 U	6.80	32670.00
JUB WELL 1	89890.00	70.00	38990.00	2695.00	0.60	61.00	12410.00 J	25.00 U	9.80	35960.00
JUB WELL 2	105400.00	56.00	41490.00	2232.00	0.20	50.00	13420.00 J	25.00 U	11.10	39370.00
JUB WELL 3	41430.00	13.20	29140.00	733.00	0.60	16.00 U	9598.00 J	25.00 U	8.00	35140.00
JUB WELL 4	95460.00	15.30	39840.00	1394.00	0.20	23.00	12290.00 J	25.00 U	9.30	36120.00
JUB CNTR.	268300.00	180.00	99060.00	5281.00	1.00	138.00	26000.00 J	25.00 U	19.10	41800.00
WSW	24.00	5.00	20600.00	3.00	0.18 U	16.00 U	7315.00 J	5.00 U	5.60	33440.00

LOCATION	THALLIUM	TIN	VANADIUM	ZINC	CYANIDE
EE1 BKGRD.	10.00 U	18.00 U	15.90 J	289.00	*
EE2	10.00 U	18.00 U	281.90 J	443.00	*
EE3	10.00 U	18.00 U	46.40 J	75.00	*
EE4	10.00 U	18.00 U	38.70	142.00	*
EE8	10.00 U	18.00 U	191.80	336.00	*
EE8	10.00 U	18.00 U	111.30 J	297.00	*
EE7	10.00 U	18.00 U	53.80 J	346.00	*
EE8	10.00 U	18.00 U	89.40 J	160.00	*
EE9	10.00 U	18.00 U	116.00 J	439.00	*
JUB WELL 1	10.00 U	18.00 U	164.50	262.00	*
JUB WELL 2	10.00 U	88.00	195.80	354.00	*
JUB WELL 3	10.00 U	18.00 U	79.40	132.00	*
JUB WELL 4	10.00 U	52.00	150.00	211.00	*
JUB CNTR.	10.00 U	18.00 U	493.70	673.00	*
WSW	10.00 U	21.00	23.50	8.00	*

Ref #2

Uncontrolled Hazardous Waste Site Ranking System

A Users Manual
(HW-10)

Originally Published in the July 16, 1982, *Federal Register*

United States Environmental Protection Agency

1984

REFERENCE 3

Resource Recovery Corporation
5501 AIRPORT WAY SOUTH
SEATTLE, WASHINGTON 98108
PHONE (206) 767-0355

RECEIVED
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

BRANCH OFFICE:
P. O. Box 650
Pasco, Washington 99301

File
Franklin Co
Resource Recovery
Land fill
JJM

July 2, 1980

Department of Ecology
E. 103 Indiana
Spokane, WA. 99207

Dear Sirs:

Attached is a breakdown of industrial waste materials brought into the Pasco landfill during the years 1972, 1973, and 1974. Their location in the site is indicated by reference to the survey map prepared by A.D. Stanley & Associates Inc. dated 6/5/80.

Sincerely,

John R. Kimberly, Jr.
President

Memo for File 9-10-80

Checked recording info. with Auditor and it is correct.

JJM

Drums	1972	1973	1974	Site
Paint Waste SLU	6314	9195	8691	A
Caustic Wastes BASE	959	3277	4538	A
Acid Wastes ACID	85	459	----	A
2-4 D mfg. Waste	588	4492	----	B
Carcenogenics	----	9	----	A
Pesticide Containers PSD	----	863	----	A
Aromatic Tar OCC	----	160	----	A
Oil Sludge SLU 433	----	----	433	A
Cedimum Waste	----	11	----	A
Pesticides PSD	----	425	----	A
Metal Finishing MES	----	----	304	A

Gallons	1972	1973	1974	Site
Waste Cutting Oil OLW	3000	28500	52800	D
Lime Phenol Waste SOL	----	217724	467243	C
Metal Cleaning Waste MES	----	3703 138938	46224	C
Paint Waste SLU 1330	----	6005	60511	D
Acids ACD	----	6000	1000	C
Solvents SOL	----	12648	----	D
Oily Sludges SLU 1327	----	11000	55340	D
Metal Finishing MES	----	3461 17000 59.5t	----	C

22479

Pounds	1972	1973	1974	Site
Acid metal Cleaning ACD	----	490810	1810750	C
Plywood Resin Wastes SLU 5539	----	212520	2002920	D
Paint Wastes SLU 1119	----	27200	420218	D
57910 Barium Waste with mercury SLU	----	5439 tons	6143 tons 11582	E
Fertilizer Mfg. Waste SLU 571	----	----	228288	D
Aromatic Tar OCC	----	----	499270	D
Metal Finishing MES	----	----3652	1460602 7303	C 3

442453

drums
17881
57910

REFERENCE 4

WDOE Report

Table I

RESOURCE RECOVERY INC.
Pasco Facility
Inventory
as of
October 19, 1973

Location (See Map)	Description	Amount
1	For disposal of containerized wastes such as:	
	Paint wastes (sludge, pigments, resins, colprs)	10,258 drums
	Empty pesticide containers	800 drums
	Wood treatment wastes	1,100 drums
	Etching solutions	160 drums
	Metal casting wastes	3,300 drums
	All wastes are in containers and buried under 5 feet of soil. There have been no known liquid discharges from this location.	
2	An unlined pond for evaporation of water from simple wastes such as:	
	Lime sludge and ammonia water	327,000 gal.
3	A lined pond for evaporation of water from chrome plating wastes	8,790 gal.
4	A lined pond for evaporation of water from miscellaneous liquids - not yet used to any extent	
5	A roughed out pond for later use. Being used as temporary storage for chlor-alkali sludge pending preparation of trenches 10, 11, and 12.	
6	For disposal of containerized herbicide wsstes such as:	
	2,4-D tar	2,011 drums
	MCPA Bleed	3,037 drums
	other miscellaneous	435 drums
	The drums are covered with 5 feet of soil. There have been no known discharges from this location.	
7	The currently active landfill operation.	
8, 9	Unlined trenches for temporary disposal of chlar-alkali sludge. The sludge will be moved to lined trenches 10, 11, and 12.	
10, 11, 12	Proposed site for disposal of chlor-alkali sludges. The lined trenches will be constructed as outlined in Figure 2.	
13, 14,	Space for future landfill operations.	

REFERENCE 5

Resource Recovery Corporation

5501 AIRPORT WAY SOUTH
SEATTLE, WASHINGTON 98108
PHONE (206) 767-0355

BRANCH OFFICE:
P. O. Box 650
Pasco, Washington 99301

RECEIVED
JAN ~~18~~ 20 1975
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

January 17, 1975

Mr. John Arnquist
Professional Engineer
East 103 Indiana Avenue
Spokane, WA 99027

Dear Mr. Arnguist:

The activity at the Pasco landfill site during the month of December, 1974 was as follows:

Paint Waste	59,058	Pounds
Fertilizer Mfg. Waste	70,220	"
Metal Finishing Waste	633,892	"
Plywood Resin Waste	218,060	"
Resin Mfg. Waste	112,500	Gallons
Cutting Oil Waste	3,000	"
Bilge Cleanings	1,000	"
Paint Wastes	624	Drums
Metal Finishing Waste	118	"
Metal Casting Waste	448	"

This will be the last report on the Pasco site.

Sincerely,

RESOURCE RECOVERY CORP.

John R. Kimberly Jr

John R. Kimberly, Jr.
President

JRK/mam

Resource Recovery Corporation
5501 AIRPORT WAY SOUTH
SEATTLE, WASHINGTON 98108
PHONE (206) 767-0355

BRANCH OFFICE:
P. O. Box 650
Pasco, Washington 99301

RECEIVED
DEC 23 1974
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

December 19, 1974

Mr. John Arnquist
Professional Engineer
East 103 Indiana Avenue
Spokane, WA 99027

Dear Mr. Arnguist:

The activity at the Pasco landfill site during the month of November, 1974 was as follows:

Barium Sludge	303	Tons
Paint Waste	34,540	Pounds
Metal Finishing Waste	266,560	"
Plywood Resin Waste	130,230	"
Benzoic Acid and Tars	176,000	"
Cutting Oil Waste	5,000	Gallons
Resin Mfg. Wastes	103,756	"
Paint Waste	628	Drums
Metal Casting Waste	504	"
Metal Finishing Waste	80	"

Sincerely,

RESOURCE RECOVERY CORP.

John R Kimberly Jr

John R. Kimberly, Jr.
President

JRK/mam

Clende

Resource Recovery Corporation
5501 AIRPORT WAY SOUTH
SEATTLE, WASHINGTON 98108
PHONE (206) 767-0355

BRANCH OFFICE:
P. O. Box 650
Pasco, Washington 99301

RECEIVED
NOV 8 1974
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

November 6, 1974

Mr. John Arnquist
Professional Engineer
Department of Ecology
East 103 Indiana Avenue
Spokane, WA 99027

Dear Mr. Arnquist:

The activity at the Pasco landfill site during the month of October, 1974 was as follows:

Paint Waste	61,900	Pounds
Metal Finishing Waste	174,960	"
Plywood Resin Waste	133,450	"
Barium Sludge	504,900	"
Cutting Oil Waste	3,500	Gallons
Resin Mfg. Waste	58,912	"
Paint Waste	192	Drums
Oily Waste	271	"
Metal Casting Waste	285	"

Sincerely,

RESOURCE RECOVERY CORP.

John R. Kimberly Jr. /mam

John R. Kimberly, Jr.
President

JRK/mam

Claude ✓

Resource Recovery Corporation

5501 AIRPORT WAY SOUTH
SEATTLE, WASHINGTON 98108
PHONE (206) 767-0355

BRANCH OFFICE:
P. O. Box 650
Pasco, Washington 99301

RECEIVED
OCT 12 1974
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

October 9, 1974

Mr. John Arnquist
Professional Engineer
Department of Ecology
East 103 Indiana Avenue
Spokane, WA 99027

Dear Mr. Arnquist:

The activity at the Pasco landfill site during the month of September, 1974 was as follows:

Solidified Caustic Soda	44,550	Pounds
Paint Wastes	111,280	"
Metal Finishing Waste	182,580	"
Plywood Resin Waste	43,310	"
Fertilizer Mfg. Waste	158,068	"
Cutting Oil Waste	7,500	gallons
Resin Mfg. Waste	37,794	"
Oily Sludge	162	drums
Paint Waste	632	"
Metal Casting Waste	527	"
Chemistry Lab Reagents	1	"

Sincerely,

RESOURCE RECOVERY CORP.

John R. Kimberly, Jr.
President

JRK/mam

Claude

Resource Recovery Corporation

5501 AIRPORT WAY SOUTH
SEATTLE, WASHINGTON 98108
PHONE (206) 767-0355

BRANCH OFFICE:
P.O. Box 650
Pasco, Washington 99301

RECEIVED
SEP 14 1974
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

September 11, 1974

Mr. John Arnquist
Professional Engineer
Department of Ecology
East 103 Indiana Avenue
Spokane, WA 99027

Dear Mr. Arnquist:

The activity at the Pasco landfill site during the month of August, 1974 was as follows:

Plywood Resin Waste	176,770	pounds
Acid Wash Solution	222,950	"
Metal Finishing Waste	89,680	"
Oily Sludge	112,340	"
Resin Mfg. Waste	19,746	gallons
Metal Rinee Solution	35,724	"
Cutting Oil Waste	4,000	"
Paint Waste	596	drums
Metal casting waste	374	"
Metal finishing waste	26	"

Sincerely,

RESOURCE RECOVERY CORP.

John R. Kimberly

John R. Kimberly, Jr.
President

JRK/mam

Burt B. & Claude
HWB

Resource Recovery Corporation

5501 AIRPORT WAY SOUTH
SEATTLE, WASHINGTON 98108
PHONE (206) 767-0355

BRANCH OFFICE:
P. O. Box 650
Pasco, Washington 99301

RECEIVED
AUG 9 1974
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

August 6, 1974

Mr. John Arnquist
Professional Engineer
Department of Ecology
East 103 Indiana Avenue
Spokane, WA 99027

Dear Mr. Arnquist:

The activity at the Pasco landfill site during the month of July, 1974, was as follows:

Plywood Resin waste	171,910	pounds
Acid Wash Solution	89,400	"
Oily Sludge	54,340	"
Acid Sludge	1,000	gallons
Resin Mfg. waste	5,073	"
Cutting Oil waste	6,000	"
Paint waste	1,028	drums
Metal Casting waste	336	"

As you can see, business is down drastically due to the restraint on accepting new business. I have had to refuse two large requests with lead oxide contamination and one with 50 to 70 ppm mercury. I did not check to see where they eventually did dispose of these wastes.

Sincerely,

RESOURCE RECOVERY CORP.

John R. Kimberly, Jr.

John R. Kimberly, Jr.
President

JRK/mam

CR²

Resource Recovery Corporation

5501 AIRPORT WAY SOUTH
SEATTLE, WASHINGTON 98108
PHONE (206) 767-0355

BRANCH OFFICE:
P. O. Box 650
Pasco, Washington 99301

July 17, 1974

Mr. John Arnquist
Professional Engineer
Department of Ecology
East 103 Indiana Avenue
Spokane, WA 99027

Dear Mr. Arnquist:

The activity at the Pasco disposal site during the month of June, 1974, was as follows:

Barium Sludge	233	tons
Chrome Rinse	173,890	pounds
Plywood resin waste	130,360	"
Metal finishing waste	131,220	"
Paint and solvent waste	72,475	"
Detergent metal wash	10,500	gallons
Resin mfg. waste	18,773	"
Cutting Oil waste	2,000	"
Paint waste	582	drums
Metal casting waste	448	"

This will be the last barium sludge until fall as Weyerhaeuser finished cleaning out their pits and are now starting to accumulate material again.

Sincerely,

RESOURCE RECOVERY CORP.

John R. Kimberly, Jr.

John R. Kimberly, Jr.
Preaident

JRK/mam

Resource Recovery Corporation
5501 AIRPORT WAY SOUTH
SEATTLE, WASHINGTON 98108
PHONE (206) 767-0355

BRANCH OFFICE:
P. O. Box 650
Pasco, Washington 99301

July 17, 1974

Mr. John Arnquist
Professional Engineer
Department of Ecology
East 103 Indiana Avenue
Spokane, WA 99027

Dear Mr. Arnquist:

The activity at the Pasco disposal site during tha month of May, 1974 was as follows:

Barium sludge	1,233	tons
Metal finishing waste	171,540	pounds
Chrome rinse	170,710	"
Plywood resin wastes	130,810	"
Resin Mfg. waste	4,752	gallons
Metal finishing waste	3,800	"
Cutting oil	4,000	"
Paint Waste	762	drums
Metal casting waste	336	"

Sensors and test well readings were normal,

Sincerely,

RESOURCE RECOVERY CORP.

John R. Kimberly

John R. Kimberly, Jr.
President

JRK/mam

Blue & Claude
HWB
LA
FILE

Resource Recovery Corporation
5501 AIRPORT WAY SOUTH
SEATTLE, WASHINGTON 98108
PHONE (206) 767-0355

BRANCH OFFICE:
P. O. Box 650
Pasco, Washington 99301

July 17, 1974

Mr. John Arnquist
Professional Engineer
Department of Ecology
East 103 Indiana Avenue
Spokane, WA 99027

Dear Mr. Arnquist:

The activity at the Pasco disposal site during the month of April, 1974, was as follows:

Barium Sludge	1,096 tons
Paint Waste	1,018 drums
Metal casting wastes	336 drums
Chrome Rinse	217,800 lbs.
Plywood resin waste	258,480 lbs.
Metal finishing waste	299,220 lbs.
Cutting oil	2,000 gallons
Resin Mfg. waste	31,247 gallons

Sensors and test well readings were normal. The Chrome Rinse, plywood resin waste, and metal finishing waste were expressed in gallons previously. Since the material is weighed rather than measured, I am expressing them as pounds.

Sincerely,

RESOURCE RECOVERY CORP.

John R Kimberly Jr

John R. Kimberly, Jr.
President

JRK/mam

Claude ~~John H~~

Resource Recovery Corporation

P. O. BOX 2431
OLYMPIA, WASHINGTON 98507
PHONE (206) 767-0355

BRANCH OFFICES

5501 Airport Way S.
Seattle, Washington 98108

P. O. Box 650
Pasco, Washington 99301

RECEIVED
MAY 6 1974
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

May 2, 1974

Mr. John Arnquist
Professional Engineer
Department of Ecology
East 103 Indiana Ave.
Spokane, Wa 99207

Bear Mr. Arnquist:

Activity at the Pasco disposal site during the month of March, 1974 was as follows:

Received

Paint Waste	921 drums
Metal Finishing Waste	336 drums
Wood Preservative Waste	9,457 gallons
Barium Sludge	1,178 Tons
Chrome Rinse	17,769 gallons
Metal Finishing Waste	12,650 gallons
Paint Waste	8,000 gallons
Wood Treatment Waste	67,120 gallons
Cutting Oil Waste	2,000 gallons

Our sensors and test weil readings during the month were normal, indicating no leaks or seepage.

Sincerely,

John R. Kimberly Jr.

Jphn R. Kimberly Jr.
President
Resource Recovery Corporation

JRK/dr

Resource Recovery Corporation
P. O. BOX 2431
OLYMPIA, WASHINGTON 98507
PHONE (206) 767-0355

RECEIVED
APR 26 1974
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

BRANCH OFFICES
5501 Airport Way S.
Seattle, Washington 98108
P. O. Box 650
Pasco, Washington 99301

April 24, 1974

Mr. John Arnquist
Professional Engineer
Dept. of Ecology
East 103 Indiana Ave.
Spokane, Wash.

Dear Mr. Arnquist:

Activity at the Pasco Disposal site during February 1974 was as follows:

Received:

Paint Waste	725 drums
Barium Sludge	812 tons
Chrome Rinse	21,000 gallons
Wood Treatment Waste	57,000 gallons
Tar Aromatic	160 drums
Metal Finishing Waste	412 drums
Paint Waste - Cleaning	60,511 gallons
Metal Finishing Waste	16,520 gallons
Cutting Oil Waste	6,000 gallons

Our sensors and test well readings during the month were normal, Indicating no leaks or seepage.

Sincerely,

John R. Kimberly

John R. Kimberly, Jr.
General Manager

JRK/rd

Resource Recovery Corporation
P. O. BOX 2431
OLYMPIA, WASHINGTON 98507
PHONE (206) 767-0355

BRANCH OFFICES
5501 Airport Way S.
Seattle, Washington 98108
P. O. Box 650
Pasco, Washington 99301

RECEIVED
APR 26 1974
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

April 24, 1974

Mr. John Arnquist
Professional Engineer
Dept. of Ecology
East 103 Indiana Ave.
Spokane, Wash. 99207

Dear Mr. Arnquist:

Activity at the Pasco Disposal site during January, 1974 was as follows:

Received

Paint Waste	992 drums
Barium Sludge	1,035 tons
Chrome Rinse	32,585 gallons
Wood Treating Waste	10,050 gallons
Tar Aromatic	88 drums
Cutting Oil Waste	4,000 gallons
Metal Finish Brine	5,500 gallons
Metal Finishing Waste	280 drums

Our sensors and test well readings during the month were normal, indicating no leaks or seepage.

Sincerely,

John R. Kimberly, Jr.
General Manager

JRK/rd

Resource Recovery Corporation
P. O. BOX 2431
OLYMPIA, WASHINGTON 98507
PHONE (206) 767-0355

BRANCH OFFICES
5501 Airport Way S.
Seattle, Washington 98108

P. O. Box 650
Pasco, Washington 99301

~~Bill Ba~~ HWB

RECEIVED
APR 26 1974
DEPARTMENT OF ECOLOG
SPOKANE REGIONAL OFFICE

April 24, 1974

Mr. John Arnquist
Professional Engineer
Dept. of Ecology
East 103 Indiana Ave.
Spokane, Wash. 99207

Dear Mr. Arnqulst:

Activity at the Pasco Disposal site during December 1973 was as follows:

<u>Received</u>

Paint Waste	445 druns
Barulm Sludge	1,214 tons
Chrome Rinse Water	23,257 gallons
Cutting Oils	2,000 gallons
Meatls Finishing Waste	416 druns
Paint Waste - Cleaning	27,200 gallons
Wood treatment Waste	13,950 gallons
Metal Finishing Waste	8,500 gallons

Our sensors and test well readings during the month were normal, Indicating no leaks or seepage.

Sincerely,

John R. Kimberly, Jr.
General Manager

JRK/rd

Resource Recovery Corporation
P. O. BOX 2431
OLYMPIA, WASHINGTON 98507
PHONE (206) 357-8443

RECEIVED
DEC 18 1973
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

December 14, 1973

Mr. John Arnquist
Professional Engineer
Department of Ecology
East 103 Indiana Avenue
Spokane, WA 99207

Dear Mr. Arnquist:

Activity at the Pasco Disposal site during the month of November, 1973 was as follows:

Received

Paint Waste (drums)	[illegible]
Lime Sludge (gallons)	[illegible]
Wood Preservative wastes (drums)	[illegible]
Wood Preservative wastes (gallons)	[illegible]
Cutting Oils (gallons)	[illegible]
Barium Sludge (tons)	[illegible]
Chrome Rinse Water (gallons)	[illegible]

Sensor and test well readings during the period indicated operations were normal.

Because of the continuing controversy over [illegible] business is not increasing as it should normally [illegible] expected to increase.

Yours very truly,

James W. Moon
President

JWM/ebs

Resource Recovery Corporation
P. O. BOX 2431
OLYMPIA, WASHINGTON 98507
PHONE (206) 357-8443

RECEIVED
DEC 18 1973
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

December 14, 1973

Mr. John Arnquist
Professional Engineer
Department of Ecology
East 103 Indiana Avenue
Spokane, WA 99207

Dear Mr. Arnquist:

Activity at the Pasco Disposal site during October, 1973 was as follows:

Received

Paint Waste (drums)	1,011
Barium Sludge (tons)	1,037
Chrome Rinse Water (gallons)	38,340
Cutting Oils (gallons)	6,000
Lime Sludge (gallons)	13,280

Our sensors and test well readings during the month were normal indicating no leaks or seepage.

We are still involved with the county over a land use permit.

Yours very truly,

James W. Moon
James W. Moon
President

JWM/ebs

Resource Recovery Corporation
P. O. BOX 2431
OLYMPIA, WASHINGTON 98507
PHONE (206) 767-0355

BRANCH OFFICES
5501 Airport Way S.
Seattle, Washington 98108

P. O. Box 650
Pasco, Washington 99301

RECEIVED
OCT 9 1973
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

October 3, 1973

Mr. John Arnquist
Professional Engineer
Department of Ecology
East 103 Indiana Avenue
Spokane, Washington 99207

Dear Mr. Arnquist:

Conditions A6, All and C4 of DOE Waste Discharge Permit #5301 require monthly reports. Please find belcw the data required by these conditions for the month of August, 1973.

Condition A6

Cleaning Solution NH_4 and NaOH	17,238 gallons
Metal Casting Waste	390 drums
Weed Killers MCP Tar	140 drums 680 pails
Paint Sludge	2331 drums
Iime Sludge	13,529 gallons
Emulsion Cutting Oils	3,600 gallons
Pesticide Containers	35 empty containers
Miscellaneous Lab Chemicals	29 small containers
Oil Separater Sludge	5,000 gallons
Magnesia Barium Sulfate Sludge	742 tons
Garbage	3865 yards
Refuse	963 yards

Condition All

Again this month no progress has been made in our research efforts concerning ponding of plating, wood treatment and paint wastes since we still have received none of these wastes in bulk. Iining has been installed in one pond.

Condition C4

Moisture sensor readings and test well monitoring results have remained constant all month indicating no liquids have been discharged during the period.

John

Resource Recovery Corporation

P. O. BOX 2431
OLYMPIA, WASHINGTON 98507
PHONE (206) 767-0355

RECEIVED
OCT 9 1973
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

BRANCH OFFICES
5501 Airport Way S.
Seattle, Washington 98108
P. O. Box 650
Pasco, Washington 99301

October 3, 1973

Mr. John Arnquist
Professional Engineer
Department of Ecology
East 103 Indiana Avenue
Spokane, Washington 99207

Dear Mr. Arnquist:

Conditions A6, All and C4 of DOE Waste Discharge Permit #5301 require monthly reports. Please find below the data required by these conditions for the month of July, 1973.

Condition A6

Etching Solution	80 drums
Insecticide	191 drums
Weed Killers MCP Tar	72 drums
Paint Sludge	160 drums
Iime Sludge	31,700 gallons
Emulsion Cutting Oils	3,600 gallons
Pesticide Containers	400 empty containers
Metal Casting Waste	222 drums
Magnesia and Barium Sulfates Sludge Mercury Contaminated	340 tons
Garbage	3031 yards
Refuse Misc.	845 yards

Condition All

Again this month no progress has been made in our research since we still have received none of these wastes in bulk. It is contemplated linings will be installed in the months of August or September.

Condition C4

Moisture sensor readings and test well monitoring results have remained constant all month indicating no liquids have been discharged during the period.

Sincerely,

Newt Clark
Secretary-Treasurer

cc: Stan Vendettl
Benton-Franklin Health District

Resource Recovery Corporation
P. O. BOX 2431
OLYMPIA, WASHINGTON 98507
PHONE (206) 767-0355

BRANCH OFFICES
5501 Airport Way S.
Seattle, Washington 98108
P. O. Box 650
Pasco, Washington 99301

RECEIVED
JUL 25 1973
DEPARTMENT OF ECOLOGY

July 24, 1973

Mr. John Arnquist
Professional Engineer
Department of Ecology
East 103 Indiana Avenue
Spokane, WA 99207

Dear Mr. Arnquist:

Conditions A6, A11 and C4 of DOE Water Discharge Permit #5301 require monthly reports. Please find below the data required by these conditions for the month of June, 1973.

Condition A6

Weed killers MC P Tar	240 drums
Paint Sludge	1,409 drums
Lime Sludge	16,047 gallons
Emulsion Cutting Oils	3,600 gallons
Pesticide Containers	360 each

As a recap, as of June 30, 1973, we had received a total of the following from Rhodia Corporation, Portland,

2, 4D Tar	2011 drums
MC P A Bleed	2965 drums
Other, Misc.	435 drums
Total	5411 drums

Condition A11

Again this month no progress has been made in our research efforts concerning ponding of plating, wood treatment and paint wastes since we still have received none of these wastes in bulk. We have prepared four ponds of the size we contemplate using (50' x 100') to the point where only the lining needs to be installed. The linings will be installed just prior to use.

Condition C4

Moisture sensor readings and test well monitoring results have remained constant all month indicating no liquids have been discharged during the period.

Resource Recovery Corporation

P. O. BOX 2431
OLYMPIA, WASHINGTON 98507
PHONE (206) 767-0355

BRANCH OFFICES

5501 Airport Way S.
Seattle, Washington 98108

P. O. Box 650
Pasco, Washington 99301

RECEIVED
JUN 1? 1973
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

June 11, 1973

Mr. John Arnquist
Professional Engineer
Department of Ecology
East 103 Indiana Avenue
Spokane, WA 99207

Dear Mr. Arnquist:

Conditions A6, A11 and C4 of DOE Water Discharge Permit #5301 require monthly reports. Please find below the data required by these conditions for the month of May, 1973.

Condition A6
Wastes received were:

Weed Killers - MCP Tar	487 drums
Paint Sludge	850 drums
Lime Sludge	16,629 gallons
Emulsion Cutting Oils	4,800 gallons
Pesticide Containers	250 each

Condition A11
No progress has been made in our research efforts concerning ponding of plating, wood treatment and paint wastes because we have received none of the wastes in bulk. Of interest, but not conclusive, is the fact that in connection with the discharge of the above noted lime sludge into an unlined pond the solids immediately coated the pond, perhaps in conjunction with the contents of the soil, so that the deepest penetration of moisture was in the neighborhood of 10 inches. This coating action coupled with the rapid evaporation characteristic of the area would appear to preclude the need for the lining of ponds for simple wastes of this type and should prove to be greatly in our

REFERENCE 6

ecology and environment, inc.

108 SOUTH WASHINGTON, SUITE 302, SEATTLE, WASHINGTON 98104, TEL. 206-624-9537

International Specialists In the Environmental Sciences

CONTACT REPORT

MEETING: ( )   TELEPHONE: (✓)   OTHER:

REFERENCE NUMBER:

CLIENT:

ADDRESS:

PERSON CONTACTED and TITLE: PAT BARTTELS - ENGINEERING TECHNICIAN CITY of PASCO ENGINEERING DEPT.

PHONE: 509-545-3441

FROM: CHARLES F. PITZ

TO:

ATTENDEES:

DATE: 5/27/87 - 1015

CC: G. Neumaier, Central File

Contact was made to Pasco Engineering Dept. to confirm the geographic limits of the public water supply system between the City of Pasco and the Pasco Sanitary Landfill. Concluded from the information given that there are definitely wells beyond the perimeter of public supply service that are within a 3 mile radius of the landfill. MR. Bartels is unsure whether or not the well #9/30-28M1 is tied into the city system - recommends I contact Dennis Wright,

CFP

REFERENCE 7

First Copy with Water Management
Owner's Copy
Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

No. 36

Application No.
Permit No. G320268P

(1) OWNER: Name BURLINGTON NORTHERN Address

(2) LOCATION OF WELL: County FRANKLIN Cent ¼ NW ¼ Sec. 15 T. 9 N., R. 30E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☐ Irrigation ☒ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) 36
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 16" inches.
Drilled 143 ft. Depth of completed well 143 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 16" Diam. from 0 ft. to ? ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☒ No ☐
Type of perforator used Mills Knife
SIZE of perforations 3/8" in. by 3" in.
900 perforations from 113 ft. to 137 ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.
Material used in seal Puddly Clay
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level 477 ft.
Static level ft. below top of well Date
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Black Sand	0	15 ft
Black Sand & Basalt Gravel	15	32 ft
Basalt Gravel	32	45 ft
Broken Basalt	45	60 ft.
Basalt Gravel & Black Sand	60	62 ft
Broken Basalt	62	72 ft
Clay & Basalt Gravel	72	79 ft
Clay	79	100 ft
Clay & Sand	100	104 ft
Clay & Basalt Gravel	104	106 ft
Clay, Sand & Gravel	106	112 ft
Gravel Sand & water @ 113	112	115 ft.
Sand & Gravel	115	118 ft
Black Sand & Gravel 137	118	140 ft
Bed Rock Basalt	140	143 ft

RECEIVED
SEP 17 1976
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

WA DOE Eastern District Office

1120 gpm
432 AF/yr
1940 AF/yr confirmed
480 AF

Work started 19 Completed 19

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME St. George Drilling Co.
(Person, firm, or corporation) (Type or print)

Address 701 So. 45th Ave

[Signed] (Well Driller)

License No. 0482 Date 3-15, 1974

akt=422   9/30-27P1

(1) OWNER: Name Washington Idaho Laborers   Address 3921 E. Francis, Spokane, Wn. 99207

(2) LOCATION OF WELL: County Franklin   N½ NE¼ SE ¼ SW ¼ Sec 27 T 9 N., R 30 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 135 ft. Depth of completed well 135 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 8 " Diam. from +1 ft. to 125 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Johnson
Type Stainless Steel Model No.
Diam. 8 Slot size 20 from 125 ft. to 135 ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name Berkeley
Type: Submersible H.P. 5

(8) WATER LEVELS: Land-surface elevation above mean sea level 420 ft.
Static level 74 ft. below top of well Date 8/80
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " "
" " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Air test 20 gal./min. with 10 ft. drawdown after 2 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Sand, some clay	0	5
Silty sand	5	11
3/4" minus gravel with sand & clay	11	12
Cemented gravel	12	16
Clay & gravel	16	24
Sand & silt	24	70
Yellow clay	70	76
Clay & gravel- up to 2" some water	76	84
Sand & water	84	104
Clay & sand - no water	104	109
Sand, large boulders some water	109	125
Sand & gravel with water	125	135

RECEIVED
[illegible] 1980
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

Work started 7-15 , 1980. Completed 7-18 , 1980

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME B & H DRILLING (Person, firm, or corporation) (Type or print)

Address Rt. 3 Box 3365-A, Kennewick, Wn. 993[illegible]

[Signed] H. A. Bultena (Well Driller)

License No. 0046 Date 9-8 , 19

10/22/80

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-30

alt=420 9/30-27E1

(1) OWNER: Name Paul (Savage) Address 524 Rd 39 Pasco, Wa

LOCATION OF WELL: County FRANKLIN - SW ¼ NW ¼ Sec 27 T 9 N., R 30E W.M.

ng and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 8" inches.
Drilled 112 ft. Depth of completed well 112 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: ....." Diam. from ..... ft. to ..... ft.
Threaded ☐ ....." Diam. from ..... ft. to ..... ft.
Welded ☒ 8" Diam. from 0 ft. to 112 ft.

Perforations: Yes ☐ No ☒
Type of perforator used ....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name ....
Type ..... Model No. ....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: ....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? ..... Depth of strata ....
Method of sealing strata off ....

(7) PUMP: Manufacturer's Name ....
Type: ..... H.P. ....

(8) WATER LEVELS: Land-surface elevation above mean sea level ~~390~~ ft. 440
Static level ..... ft. below top of well Date ....
Artesian pressure ..... lbs. per square inch Date ....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? ....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ....
Bailer test 25 gal./min. with 6 ft. drawdown after 2 hrs.
Artesian flow ..... g.p.m. Date ....
Temperature of water 62 Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Silty sand	0	62
gray sand	62	99
Black course sand	99	110
3/4 minus gravel + sand	110	112

RECEIVED
JUL 6 - 1978
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

Work started 6/16, 1978 Completed 6/23, 1978

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME L W SMITH WELL DRILLING (Person, firm, or corporation) (Type or print)

Address 9808 W. Argent, Pasco, Wa.

[Signed] Loyd W Smith (Well Driller)

License No. 0985 Date 7/3, 1978

Pasco 7½

7/6/78

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

Hi Yenney (New) alt=420

(1) OWNER: Name [illegible] Address

(2) LOCATION OF WELL: County Franklin — SE ¼ NE ¼ Sec. 28 T. 9 N., R. 30 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....

New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 98 ft. Depth of completed well 97'6" ft.

(6) CONSTRUCTION DETAILS: 250 wall

Casing installed: 6 " Diam. from +1 ft. to 92 ft.
Threaded ☐ ____ " Diam. from ____ ft. to ____ ft.
Welded ☒ ____ " Diam. from ____ ft. to ____ ft.

Perforations: Yes ☐ No ☒
Type of perforator used ____
SIZE of perforations ____ in. by ____ in.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Johnson
Type Stainless Steel Model No. ____
Diam. 6 Slot size 15 from 92 ft. to 97 ft.
Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: 406
Gravel placed from ____ ft. to ____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 25 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? ____ Depth of strata ____
Method of sealing strata off ____

(7) PUMP: Manufacturer's Name ____
Type: ____ H.P. ____

(8) WATER LEVELS: Land-surface elevation above mean sea level.... [illegible]
Static level 72 ft. below top of well Date 6-19-80
Artesian pressure ____ lbs. per square inch Date ____
Artesian water is controlled by ____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? ____
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ____
Bailer test 30 gal./min. with 2 ft. drawdown after ____ hrs.
Artesian flow ____ g.p.m. Date ____
Temperature of water ____ Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Sand TAN + Black	0	63
Sand Black + gravel 2" minus	63	72
Sand Black + gravel 2" minus Water Bearing	72	97½
Sand Tan + gravel 6" Ringold Type	97½	98+

Between Husky & Norm turn left. Old Kole driveway locked up. before noon

Work started 6-19, 19 80. Completed 6-19, 19 80

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Nelson Well Drilling Inc (Person, firm, or corporation) (Type or print)

Address 10036 West Argent, Pasco

[Signed] James Nelson (Well Driller)

License No. 361 Date 6-19, 19 80

2/6/84

(USE ADDITIONAL SHEETS IF NECESSARY)

Pasco

L. F. No. 7359—OS—(Rev. 4-71)
ECY-070-28

Third Copy — Driller's Copy

STATE OF WASHINGTON

Permit No. G3 27301 P

(1) OWNER: Name City of Pasco Address

(2) LOCATION OF WELL: County — NW ¼ SW ¼ Sec 28 T. 9 N., R. 30E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☐ Irrigation ☒ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)

New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 73 ft. Depth of completed well 70 ft.

(6) CONSTRUCTION DETAILS: Sch 40 atlas steel

Casing installed: 8 " Diam. from +1 ft. to 58 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Johnson
Type Stainless Model No.
Diam. 8 Slot size 50 from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 30 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level 400 ft.
Static level 48 ft. below top of well Date
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Layne
Yield: gal./min. with ft. drawdown after hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☐

6/7/85

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Sand Black	0	27
Sand Tan	27	36
Gravel 6" minus sand TAN Water Bearing @ 48'	36	52
Gravel Cemented	52	55
Gravel 6" minus Sand Tan	55	68
Sand Tan Gravel Trace	68	73

10 Irrigated acres confirmed in phone conversation w/ WADOE

Work started 4-9, 1985. Completed 4-11, 1985

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Nelson Well Drilling Inc (Person, firm, or corporation) (Type or print)

Address 10036 W Argent Pasco

[Signed] James Nelson (Well Driller)

License No. 361 Date 6-3, 1985

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

First Copy with Ecology
Owner's Copy
Driller's Copy

Roosevelt Re -210

WATER WELL REPORT

STATE OF WASHINGTON

Application No. /
Permit No. ....

(1) OWNER: Name Tony Kidwell Address PO Box 3029 Pasco Wash

(2) LOCATION OF WELL: County Franklin NW ¼ SW ¼ Sec. 16 T. 9 N., R. 30 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 107 ft. Depth of completed well 107 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from +1 ft. to 99 ft.
Threaded ☐ ....." Diam. from ..... ft. to ..... ft.
Welded ☒ ....." Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type ..... Model No.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 40 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Good Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: ..... H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ..... ft.
Static level 70 ft. below top of well Date
Artesian pressure ..... lbs. per square inch Date
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: 30 gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test ..... gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Sand	0	78
Sand & Gravel	78	107

JUN 1 - 1981

Work started 3-19, 1981. Completed 3-20, 1981

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Northwest Water Wells Inc. (Person, firm, or corporation) (Type or print)

Address PO Box 1059 Hayden Lake Idaho 83835

[Signed] Duncan S. Lickfold (Well Driller)

License No. 725 Date 3-30, 1981

WATER WELL REPORT
STATE OF WASHINGTON

First Copy with Ecology
Owner's Copy
Driller's Copy

Application No.
Permit No.

(1) OWNER: Name VAN WORMER Address

(2) LOCATION OF WELL: County ¼ NW ¼ Sec. 17 T. 9 N., R. 30 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☑ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)
New well ☐ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well inches.
Drilled 77 1/2 ft. Depth of completed well ft.

(6) CONSTRUCTION DETAILS:

Casing installed: " Diam. from ft. to ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☐ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☐
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☑ No ☐
Manufacturer's Name JOHNSON
Type WIRE SCREEN Model No. 304
Diam. 5 Slot size 035 from 94 1/2 ft. to 99 1/2 ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☐ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☑ No ☐ To what depth? ft.
Material used in seal BENTONITE
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name BERKELEY
Type: SUB H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level 35'-8" ft. below top of well Date 4/22/75
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☑ No ☐ If yes, by whom?
Yield: 35 gal./min. with 1 ft. drawdown after 2 hrs.
" " "
" " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 4/22/75
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water 62 Was a chemical analysis made? Yes ☐ No ☑

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
[illegible]	[illegible]	[illegible]
Black Sand	17	[illegible]
[illegible] Sand [illegible]	[illegible]	[illegible]
[illegible]		[illegible]
[illegible]		
[illegible]		

Work started Apr 15, 1975 Completed Apr 22, 1975

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME CASCADE DRILLING CO. (Person, firm, or corporation) (Type or print)

Address P.O. DRAWER E, KENNEWICK

[Signed] (Well Driller)

License No. 0466 Date 4/22, 1975

(USE ADDITIONAL SHEETS IF NECESSARY)

REFERENCE 8

ID NO.	SYSTEM NAME / SYSTEM MAILING ADDRESS / MANAGER/OWNER NAME / BACTI SAMPLING SCHEDULE / POPULATION / SOURCE NO. SOURCE NAME	COUNTY / CITY, ST ZIP / TELEPHONE / CATEGORY	TYPE	INTERTIE	ACTUAL / DEPTH	POTEN / CAPACITY	TREATMENT	CLASS	TWP RNG SEC
453103	LAKEVIEW MOBILE HOME PARK	FRANKLIN						Class: 1	
	Z S 1505 RD 40E	PASCO, WA 99301							
	Mgr: RICHARD MEINEMEYER	582-3271			206	0			
	Bacti: 1/month								
	Pers: 800								
	Source: 1	WELL			103′	70	NONE.		34N 30E IK
	Source: 2	WELL			89′	350	NONE.		34N 30E IN
	Source: 3	WELL			99′	220	NONE.		34N 30E IN
	Source: 4	WELL			100′	490	NONE.		9N 30E 34
464003	PASCO WATER DEPARTMENT	FRANKLIN						Class: 1	
	PO BOX 293	PASCO, WA 99301							
	Mgr: JAMES S. AJAI	(509) 543-3468			6.350	0			
	Bacti: 22/month								
	Pers: 19.100								
	Source: 1 COLUMBIA RIVER	SURF	PRI.			12.500	CL2.COAG.SED.FILT.		9N 30E 3N
243039	RADA SONS	FRANKLIN						Class: 4	
	IS E ICE HARBOR DR	PASCO, WA 99301							
	Mgr: DOUG RADA	545-1054			6	5			
	Bacti: once/12 months								
	Pers: 16								
	Source: 1 WELL #1	WELL	PRI.		100′	62	NONE.		9N 30E 28
739203	ROGERS-WALLA WALLA INC	FRANKLIN						Class: 2t	
	PO BOX 2324	PASCO, WA 99302							
	Mgr: WILLIAM T. LAWR	(509) 547-3851			0	0			
	Bacti: once/ 3 months (*)								
	Pers: 0 Transitory:	JAN 500, FEB 500, MAR 500, APR 500, MAY 500, JUN 500, JUL 500, AUG 500, SEP 500, OCT 500, NOV 500, DEC 500							
	Source: 1 WELL # 1	WELL	PRI.		80′	180	CL2.		9N 30E 6N
	Source: 2 WELL # 2	WELL	PRI.		87′	280	CL2.		9N 30E 6N
	Source: 3 WELL # 3	WELL	PRI.		82′	185	CL2.		9N 29E 1R
	Source: 4 WELL # 4	WELL	PRI.		83′	415	CL2.		9N 30E 6N
8354SP	STANDARD OIL OF CALIFORNIA	FRANKLIN						Class: 4	
	P O BOX 413	PASCO, WA 99301							
					1	0			
	Bacti: once/12 months								
	Pers: 20								
	Source: 1	WELL			350′		NONE.		9N 30E 3SL
233268	WESTERN FARMS SERVICE INC	FRANKLIN						Class: 4t	
	E. 10005 MONTGOMERY	SPOKANE, WA 99206							
	Mgr: WAYNE DUFF	(509) 924-9213			0	0			
	Bacti: once/12 months								
	Pers: 0 Transitory:	JAN 24, FEB 24, MAR 24, APR 24, MAY 24, JUN 24, JUL 24, AUG 24, SEP 24, OCT 24, NOV 24, DEC 24							
	Source: 1 WELL #1	WELL	PRI.		120′	80	NONE.		9N 30E 27F

Handwritten beside RADA SONS: home address, not well; off "A" street between Lewis & main highway

PUBLIC WATER SUPPLY SYSTEM LISTING 09/05/86
SHAFER/EPA

ID NO. SYSTEM NAME | COUNTY | CLASS
SYSTEM MAILING ADDRESS | CITY, ST ZIP
MANAGER/OWNER NAME | TELEPHONE | ACTUAL | POTEN
BACTI SAMPLING SCHEDULE | JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
POPULATION
SOURCE NO. SOURCE NAME | CATEGORY TYPE INTERTIE DEPTH CAPACITY TREATMENT | TWP RNG SEC

035206 AZTLAN CONSTRUCTION INC | FRANKLIN | Class: 4
2700 E LEWIS | PASCO, WA 99301
Mgr: DON NORVELL | (509) 545-1985 | 6 | 0
Bacti: once/12 months
Perm: 20
Source: 1 | WELL | 106' | NONE. | 9N 30E 28D (67)

076384 BONNEVILLE POWER ADMIN-FRANKLIN | FRANKLIN | Class: 4
22 PASCO-KAHLOTUS RD | PASCO, WA 99301
Mgr: BOB CUTRICHT | 1 | 0
Bacti: once/12 months
Perm: 16
Source: 1 | WELL | 120' | NONE. | 9N 30E 27K

07665B BONNIE BRAE TRAILER COURT | FRANKLIN | Class: 2
2508 EAST LEWIS | PASCO, WA 99301
Mgr: ROBERT S LAURENCE | (509) 345-4205 | 36 | 0
Bacti: once/ 3 months (#)
Perm: 65
Source: 1 WELL NO 1 | WELL PRI. | 120' | 300 | NONE. | 9N 30E 28A

886856 DE VRIES WATER SYSTEM dairy | FRANKLIN | Class: 4
HC 32 BOX 1026 | PASCO, WA 99301
Mgr: GARY DE VRIES | (509) 545-4125 | 6 | 0
Bacti: once/12 months
Perm: 12
Source: 1 | WELL | 120' | 250 | NONE. | 9N 30E 22G
Source: 2 | WELL | 120' | 250 | NONE. | 9N 30E 22G
Source: 3 | WELL | 120' | 250 | NONE. | 9N 30E 22G

266300 FRONTIER MACHINERY | FRANKLIN | Class: 3t
1707 EAST JAMES | PASCO, WA 99301
Own: AL-MAC DEVELOPMENT CO. | 0 | 0
Bacti: once/ 3 months
Perm: 0 Transitory: | 50 50 50 50 50 50 50 50 50 50 50 50
Source: 1 WELL | WELL PRI. | 120' | 250 | NONE. | 9N 30E Sec 21

33990R HOMMES HIDAWAY (motel) 2 blocks west of Rada | FRANKLIN | Class: 4t
2506 E LEWIS | PASCO, WA 99301
Mgr: LILLIAN T. HOMME | 547-3697 | 1 | 0
Bacti: once/12 months
Perm: 2 Transitory: | 4 6 8 10 10 10 10 10 10 10 10 10
Source: 1 WELL # 1 | WELL PRI. | 91' | 30 | NONE. | 9N 30E
Source: 2 WELL # 2 | WELL | 91' | 30 | NONE.

D need § 28-1W
98'

REFERENCE 9

CONTROL # SEC OLD OLD OLD DATE OF S C A CNTY PERMIT NAME SOURCE OF APPROPRIATION TRIBUTARY OF
APPL PERM CERT PRIORITY T C M DATE
#OF
PTS P LOC. OF POD/POW (CMG CU) PURPOSE OF USE USE INST C R S ANNUAL C P S IRR C S PRO- TIME OF P R P
TYPE QI M U U QA N U U AC M U VISOS USE I A C

WATER RESOURCE INVENTORY AREA- 33

TOWNSHIP - 08 RANGE - 30 E

TOWNSHIP - 05 RANGE - 30 E

C3*04681C 01 0A651 04445 04695 00/13/957 WALL 02/14/950 USFWS WELL
1 TH25 PASCO FWP / LIGHT LAND IRRIGATION C 600.0 G 684.0 171.0 A IS

G3*00760S 02 00760 00811 00/00/923 WALL / / UMSAPGER R W WELL
1 E2 11 DOMESTIC SINGLE C 350.0 C 2 160.0 2
IRRIGATION C 350.0 G 2 260.0 2 20.0 IS

GI*08930C 02 08930 08245 05973 03/25/967 WALL 01/09/968 WALLA WALLA PORT D WELL
1 CII DOMESTIC GENERAL C 25.0 G 3 26.0 PN$
COMMERCIAL/INDUSTRIAL C 15.0 G 3 12.0 2 PN$
FIRE PROTECTION C 25.0 G 3 12.0 2 PN$

33*00540R 03 00540 00636 00/00/923 FRAN / / BENNIKGHOVEN C / E WELL
1 NW4SW6NE4 DOMESTIC SINGLE C 600.0 G 2 350.0 2
IRRIGATION C 600.0 G 2 350.0 2 120.0 % IS

G3*003413 03 00541 00839 00/00/926 FRAN / / BENNIKGHOVEN C / E WELL
1 E2SE4NW4 IRRIGATION C 350.0 C 250.0 120.0 % IS

G3-25397C 03 08/15/977 FRAN 08/30/978 NATIONAL MARINE FI INFILTRATION TR
1 NWG FISH PROPAGATION N 2250.0 C

S3*07162C 03 07162 0S043 03951 05/21/946 FRAN 05/26/947 WA ST PK&REC COMM SNAKE R (UALLULA LK) COL R (WALL LK)
1 L10 DOMESTIC MULTIPLE C .15 C S

TOWNSHIP - 09 RANGE - 30 E

S3*04369PAL 01 08389 07643 11/09/966 S FRAN 01/09/967 BURLINGTON NORTHER WELLS
2 NE4NW4 DOMESTIC MULTIPLE C 1300.0 G 2 1.0 69 5 5
IRRIGATION C 1300.0 G 2 548.0 137.0 . $R IS 5 3 5

C3*09966PAL 01 09966 09476 01/06/969 S FRAN 01/09/967 BURLINGTON NORTHER WELLS
2 NE4NW4 DOMESTIC MULTIPLE C 1600.0 G 2 2.0 $R 5 5
IRRIGATION C 1600.0 G 2 552.0 160.0 $R 02011130 3 5 5

G3-23784PAL 01 06/12/974 S FCAN 07/09/975 VOSS RAYMOND C ET WELLS
2 GL-A IRRIGATION C 2500.0 G 969.4 165.0 PB$ 01011231 2 2 2

G3-23850PAC 01 07/06/974 S FRAN 07/31/975 VOSS RAYMOND C WELLS
2 GL-4 IRRIGATION C 2300.0 G 1383.0 302.0 PB$ 01011231 2 2 2

C3-24500PAL 01 05/07/975 S FRAN 01/09/967 BURLINGTON NORTHER WELLS
2 NE6NW4 IRRIGATION C 1470.0 G 425.0 107.0 $P 02011130 3 5 5

G3-24526P 01 05/03/975 S FRAN 03/23/976 BURLINGTON NORTHER WELL
1 CL-4 IRRIGATION C 3375.0 S 1965.0 375.0 RIBW$ IS

G3-24775PAL 01 01/15/976 R FRAN 07/19/976 VOSS RAYMOND ET UX WELLS
2 GL-6 ENVIRONMENTAL QUALITY C 1300.0 S 2 RB6 2 B 0
IRRIGATION C 1500.0 G 2 636.64 160.0 RE0$ IS 2 2 2

G3-27029BAI 01 06/03/951 S FRAN 01/09/967 BURLINGTON NORTHER WELLS
2 NE4NU4 IRRIGATION C 2700.0 G 1200.0 300.0 $PE 01011130 6 6 6

C3X10267P 02 10267 09623 06/16/969 FRAN 06/14/970 MARCHBA O ET AL WELLS
2 SE4 IRRIGATION C 1500.0 G 5.0 150.0 EB/Q C1011231

G3-22491P 02 02/04/974 S FRAN 06/14/974 TIPPETT ROBERT A WELLS
2 NW4 SE4 NW4 & NW4 SW4 NE4 IRRIGATION C 2160.0 S 1116.0 240.0 RM$ 03011101

G3-22A99P 02 02/04/974 S FRAN 06/14/974 TIPPETT ROBERT A WELL
1 NW4SW4NE4 IRRIGATION C 1440.0 G 744.0 160.0 $BMB 03011101

G3-23887P 02 10/24/974 FRAN 07/03/975 TIPPETT ROBERT A WELLS
2 SE4NW4, SW4NE4 IRRIGATION C 2400.0 G 1116.0 240.0 MPUB$ 03011101

G3-20245PAL 03 06/02/972 S FRAN 10/16/965 BURLINGTON NORTHER WELLS
2 SW4SW4 X IRRIGATION C 5200.0 G 2101.6 520.0 RBM$ 02011031 2 2 2

03-25175P 03 01/13/977 S FRAN 10/16/985 BURLINGTON NORTHER WELL
1 SW4SW4 X IRRIGATION C 1200.0 C 520.0 130.0 $RK 01011231

G3-246410 10 11/08/975 FRAN / / CONN MUT LIFE INS WELL
SE4NW6SW4 X IRRIGATION C 1400.0 G 533.0 145.0 PBWI 04011031

CONTROL # / WUF P PTS P LOC. OF POD/POW	SEC #	OLD APPL	OLD PERM	OLD CERT / (CNG CO) PURPOSE OF USE	DATE OF PRIORITY	S C A T C M	CNTY / USE TYPE	PERMIT DATE / INST QI	NAME / C P S N U W	ANNUAL QA	C P S M U U	IPR AC	C S M O	PRO-VISOC	TIME OF USE	R R P I A C
WATER RESOURCE INVENTORY AREA- 33																
TOWNSHIP - 09 RANGE - 30 E																
G3-20245PBL	11				08/02/972	S	FRAN	10/16/985	BURLINGTON HORTHER WELL							
1 NW4NW4				X IRRIGATION			C	5200.0 C		2101.6		520.0		RBM$	02011031	2 2 2
G3-20247P	11				08/02/972	S	FRAN	10/16/985	BUPLINGTON NORTHEP WELLS							
4 NE4, NW4, SW4, SE4				X IRRICATION			C	5200.0 G		2101.6		520.0		BMP$	02011031	
C3*08389PBL	12	08309	07843		11/09/968	S	FRAN	01/09/987	BURLINGTON NORTHER WELLS							
3 SW4SE4; NW4SE4				DOMESTIC MULTIPLE			C	1300.0 C 2		1.0				IR		S S
				IRRICATION			C	1300.0 G 2		546.0		137.0		$R	IS	5 5 5
G3*10897PBL	12	10897B	10377		05/20/970	S	FRAN	01/09/987	BURLINCTON NORTHEP WELLS							
3 SW4SE4; NW4SE4				IRRIGATION			C	4000.0 C		1627.0		400.0		$R	03011031	5 5 5
G3-24500PBL	12				05/07/975	S	FRAN	01/09/987	GURLINGTON NORTHER WELLS							
1 SW4SE4; NW4SE4				IRRIGATION			C	1470.0 G		426.0		107.0		$R	C2011130	5 5 5
G3-24546P	12				08/07/975	S	FRAN	10/03/955	CONN MUT LIFE INS WELLS							
2 NW4NW4 I SW4NW4				IRRIGATION			C	1200.0 C		609.4		116.0		$RK	01011231	
G3-27029BBL	12				08/03/981	S	FRAN	01/09/987	BURLINGTON NORTHER WELLS							
3 SW4SE4; NW4SE4				IRRIGATION			C	2700.0 G		1200.0		300.0		$RK	02011033	6 6 6
G3-27029BFL	13				04/03/981	S	FRAN	01/09/987	BUPLINGTON NOPTHEP WELLS							
2 SE4NW4				X IRRIGATION			C	2700.0 G		1200.0		300.0		$RK	02011133	6 6 6
G3-24312C	14				01/31/975		FRAM	12/19/975	MIODLETON WILLIAM WELL							
1 NE4				X IRRIGATION			C	1400.0 G		744.0		141.0		$	01011231	
G3-25155A	14				04/03/988		FRAN	/ 7	MIODLETON WILLIAM WELL							
1 E2NE4; NE4NE4				X IRRIGATION			C	300.0 G				20.0			IS	
G3-01177C	21	10498	09977		03/11/970		FRAN	11/23/970	COLUMBIA EAST ITO WELL							
1 SW4 NE4 SE4				X IRRIGATION			C	666.0 G		719.0	S	266.0	S	MP	03011101	
G3*08389PCL	23	08389	07543		11/09/984	S	FRAN	01/09/987	BURLINGTON NORTHEP WELLS							
2 NE4NE4				X DOMESTIC MULTIPLE			C	1300.0 G 2		1.0				IR		5 5
				IRRIGATION			C	1300.0 G 2		546.0		137.0		$R	IS	5 5 5
C3*09988PCL	23	09968	09478		01/06/969	S	FRAN	01/09/987	BURLINGTON NORTHER WELLS							
2 NE4NE4				X DOMESTIC MULTIPLE			C	1600.0 G 2		2.0				IR		5 5
				IRRICATION			C	1600.0 G 2		552.9		160.0		$R	02011130	5 5 5
G3*10897PCL	23	10897	10377	X IRRIGATION	05/20/970	S	FRAN	01/09/987	BURLINGTON NORTHER WELLS							
2 NW4NW4							C	4000.0 G		1427.0		400.0		$R	03011651	5 5 3
G3-20251PAL	23				08/02/971	S	FRAN	02/13/985	BURLINGTON NORTHER WELLS							
3 NW4NW4/SW4SE4/NW4SW4				X IRRIGATION			C	2743.0 G		2289.0		315.0		$RM	02011031	2 2 2
G3-24500PCL	23				05/07/975	S	FRAN	01/09/997	BURLINGTON NORTHER WELLS							
2 NE4NE4				X IRRIGATION			C	1470.0 G		426.0		107.0		$R	02011130	5 5 5
G3-27029BCL	23				08/03/981	S	FRAN	01/09/987	BURLINGTON NORTHER WELLS							
2 NE4NE4				X IRRIGATION			C	2700.0 G		1200.0		300.0		$RK	02011130	4 4 4
C3-27881I	23				05/17/984		FRAN	03/29/985	BURLINGTON NORTHER WELL							
1 SW4SE4				X IRRIGATION			C	1600.0 G		800.0		200.0		$$BK	IS	
G3*08389POL	24	08389	07543		11/09/986	S	FRAN	01/09/987	BURLINGTON NORTHER WELLS							
4 NW4NW4				DOMESTIC MULTIPLE			C	1300.0 G 2		1.0				$R		3 5
			ho	X IRRIGATION			C	1300.0 G 2		548.0		137.0		$R	IS	5 5 5
G3*09968PDL	24	09944	09478		01/04/989	S	FRAN	01/09/987	BURLINGTON NORTHER WELLS							
4 NW4NW4				DOMESTIC MULTIPLE			C	1600.0 G 2		2.0				IP		3 5
			ho	X IRRIGATION			C	1600.0 G 2		562.0		160.0		$P	02011130	3 5 5
G3*10897PDL	24	10897	10377		05/20/970	S	FRAN	01/07/987	BURLINGTON NORTHER WELLS							
4 NW4NW4			ho	X IRRIGATION			C	4000.0 G		1427.0		400.0		$R	03011031	5 3 3
G3-00472C	24	09298	08817		03/12/988		FRAN	08/16/948	SULLIVAN ROBERT GJ WELL							
1 E2 NW4 NW4				X DOMESTIC SINGLE			C	260.0 G 3		2.0				R		
				STOCK WATERING			C	200.0 G 3		1.0				R		
				IRRIGATION			C	200.0 C 3		60.0		20.0		R	03011031	
G3-24500POL	24				05/07/975	S	FRAN	01/09/987	BURLINGTON NORTHER WELLS							
4 NW4NW4				X IRRIGATION			C	1470.0 C		426.0		107.0		$R	02011130	5 5 5
C3-27029BDL	24				08/03/981	S	FRAM	01/09/987	BURLINGTON NORTHER WELLS							

06/08/87 15:09 DEPT OF ECOLOGY / HQ OLYMPIA WA 003

CONTROL # / PTS P LOC. OF POD/POM	SEC #	OLD APPL	OLD PERM (CNG CR)	OLD CERT	DATE OF PRIORITY / PURPOSE OF USE	S C A T C M	CNTY / USE TYPE	PERMIT DATE / INST QI	NAME / ANNUAL QA	C R S M U U	IRR AC	C M / PROVISOS	SOURCE OF APPROPRIATION / TRIBUTARY OF / WRL CF USE	P R P I A C
WATER RESOURCE INVENTORY AREA- 33														
TOWNSHIP - 09 RANGE - 30 E														
6 NW4NW4					X IRRIGATION		C	2700.0 G	1200.0		300.0	$RK	02011130	4 8 6
83-241440AL	25				01/22/979	S	FRAN	07/02/985	BURLINGTON NOPTHER				WELL	
1 NW4SW4					X IPRICATION		C	400.0 C	160.0		40.0	RMKS	0IIII231	2 2 2
83-00401C	24	11913			05/20/971		FRAN	04704/973	ALDERSON J R & R				WELL	
1 SU4NE4					X IRRIOATION		C	1440.0 G	7E8.0		150.0	RMS	03011121	
G3-00942C	24	12359	-----		12/31/971		FRAN	10/12/975	COLUMBIA EAST LTD				WELLS	
2 SE4NW4SW4,NE4SW4NW4					X ISRIGATICN		C	4500.0 G	2500.0		500.0	MR$	0301110	
03-20251PBL	28				04/02/972	S	FRAN	02/13/985	BURLINGTOM NORTHER				WELL	
1 SW4NE4					X IRRIOATION		C	2745.0 G	1280.0		315.0	$RM	02011031	2 2 2
03-28144BSL	28				01/22/979	S	FRAN	07/02/985	BURLINGTON NORTHER				WELLS	
2 SE4SE4					X IRPICATIOM		C	400.0 G	180.0		40.0	RMIK	01P1I231	2 2 2
03-278971	28				09/27/984		WALL	07/24/985	BURLINGTON NORTN R				UELL	
1 W2SW4					X IRRIGATION		C	750.0 G	300.0		75.0	$RK	IS	
G3-01085C	34	07987	07487		03/01/984		FRAM	04/05/984	HILL CECIL C				NELLS	
3 N2SW4SE4					X DOMESTIC MULTIPLE		C	500.0 G 2	22.4			AETHM		
					IRRIGATIOM		C	500.0 G 2	60.0		15.0	AETHM	IS	
03*028330	33	02833	02740	01447	11/28/952		FRAN	05/08/953	TIOEWATER SHAVER				WEIL	
1 GL-1					DOMESTIC SINGLE		C	100.0 G 2	140.0	2		AE		
					COMMERCIAL/INDUSTRIAL		C	100.0 G 2	140.0	2		AE		
G3*2849SL	33				01/16/974		WAIL	09/05/974	USCE				UELL	
1 GL4					DOMESTIC MULTIPLE		C	450.0 G 2	5.0			RHI		
					X IRRIGATION		C	450.0 G 2	42.83		10.0	RH$	03011031	
S3*11857C	35	11457	0A889	05191	11/24/952		FRAM	02/20/953	STANOAPO OIL CO CA				SWACE R (WALIULA LK) COL R &WALE LK)	
L L4					FIRE PROTECTION		C	.438 C				S		
					X IRRIGATION		C	.01 C			.75	S	04151001	
G3*02344C	34	02344	02215	02124	02/18/952		WALL	08/13/932	SOUTH COL BSN IRR				UELL	
1 SW4SU4SE4					DOMESTIC MULTIPIE		C	40.0 G	64.0					
G3*04117C	34	08117	05839	04249	11/28/981		WALL	05/25/962	SPOUN GE / J O				WELL	
1 L3 PLAT RIVER BANK BEIGHTS					DOMESTIC SINGLE		C	25.0 C 2	12.0	2		A		
					IRRISATION		C	25.0 G 2	12.0	2	3.0	AE	IS	
G3-22244C	38				12/14/973		WAIL	11/08/974	CARISOM WAITER E				WELL	
1 SU4 SE4 NW4					OCMESTIC SINGLE		C	39.0 G 2	1.0			R$		
					IEPIGATION		C	30.0 G 2	7.33		2.0	R$	01011231	
G3-25013C	34				08/05/974		UALL	12/07/977	CARLSON WALTER E				WELL	
1 L-4 BL-I CARISON PL 91					DOMESTIC MULTIPLE		C	140.0 G 2	10.0			P$		
					IRRIGATION		C	140.0 G 2	31.0		8.48	R$	01011231	
TOWNSHIP - 09 RANCE - 31 E														
G3*10897PAE	01	19897A	10377A		05/20/970	S	FRAN	01/09/987	BURLIUGTON NORTNER				UELL	
2 NE4NW4					IRRIGATION		C	4000.0 G	1427.9		400.0	$R	03011031	5 5 5
33-24017B	06				05/21/985		FRAN	08/28/988	KENNEDY JOHN O				WELL	
1 SL-L					DOMESTIC MULTIPIE		C	350.0 G 2	2.0			$MPK		
					IRRIGATION		C	350.0 G 2	164.0		40.0	$MPK	IS	
G3*08309PEL	07	08309	07843		11/09/984	S	FRAN	01/09/987	BURLINGTON NORTNER				WEIL	
1 NW4NW4					DOMESTIC MULTIPLE		C	1300.0 G 2	1.0			$R		5 5
					IPRIGATION		C	1300.0 G 2	548.0		137.0	$P	IS	5 5 5
03*09968PEL	07	09968	09478		01/08/999	S	FRAN	01/09/987	BURLINGTON NORTHER				CELL	
1 NW4NM4					DCMESTTC MULTIPLE		C	1800.0 G 2	2.0			$R		5 5
					IRRIGATION		C	1800.0 G 2	582.0		140.0	$R	02011130	5 5 5
03*10897PEL	07	10897	10377		05/20/970	S	FRAN	01/09/987	BWRIENCTON NORTNER				WEIL	
1 NWANU4					IRRIGATION		C	4000.0 G	1427.0		400.0	LR	03011031	5 5 5
G3-24500PEL	07				05/07/975	S	FRAN	01/09/987	SURLINSTON NORTHER				UELL	
1 NU4NW4					IRRIGATION		C	1470.0 G	428.0		107.0	$P	02011130	5 5 5
G3-27029BEI	07				08/03/981	S	FRAN	01/09/987	BUPLINGTCN NOPTNEP				USLL	
1 NU4NW4					IRRIGATION		C	2700.0 G	1200.0		300.0	$RK	02011130	4 4 4

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CONTROL #   SEC  OLD    OLD    OLD    DATE OF   S C A  CNTY  PERMIT    MAME                     SOUPCE OF APPROPRIATION TRIBUTARY OF
             #   APPL   PCPM   CEPT   PRIORITY  T C M        DATE
EOF P                                                  USE    INST  C P S  ANNUAL C R S  LER  C S PPO-   TIME OF  9 E #
PTS P LOC. SF POO/POM  (CHG C#)  PURPOSE OF USE        TYPE   QI    M U U  QA     M U U  AC   M U VISOS  USE      1 A C

WATER RESOURCE INVENTORY AREA-  34

TOWNSHIP - 09    RANGE - 29 E

G3*04249C    29 14249   05694   04320   04/10/962        FRAN 07/13/962 PHILIP P F         WELL
 I   L2 BL2 PLAT OF RIVER HCMES DOMESTIC SINSLE      C        10.0 G           5.4                        AN
                                IRRIGATION           C        15.0 G           4.0              1.5       AN

G3*06795C    29 06705   06366   04620   6S/C67*65  E     FRAU 68/32/965 KUFFEL C F         WELL
 1   L4 B13 RIVER HCMES FRANK CO DOMESTIC SINCLE     C        10.0 G           4.0                        AEN

G3*08765C    26 06785   06242   06344   06/09/967        FPAN 01/09/969 OLSOM R L          WELL
 1   L5 B13 PIVEP HCMES ADO     DOMESTIC SINGLE      C        90.0 G 2         1.0                        PN
                                IRRIGATION           C        90.8 G 2         6.0              1.5       PN4      IS

G3-00195C    26 11972                   04/24/971        FPAN 10/24/972 PHILLIP ROBERT F   WELLS
 2   L2 B3 PL PIVEP HOMES IM GL2 DSMESTIC SINGLE     C       120.0 G 4         2.0    2                   RMTN
                                STOCK WATERING       C       120.0 G 4         2.0    2                   RMTN
                                REC 6 BEAUTIFICATION C       120.0 0 4         9.0    2                   EMTH     04011001
                                IRRICATION           C       110.0 G 6         9.0    2         2.0       RMTN     04011001

TOWNSHIP - 09    RANGE - 30 E

G3-23403P    04                         06/06/574  S     FRAN 07/23/075 MIKNAHAN JAMES     WELL
 1   SE4 SE4                    COMESTIC SINOLE      C       400.0 D 3         2.0    2                   PIMB$
                                STOCK WATERING       C       400.0 C 3         1.0    2                   PIMB$
                              X IRRIOATION           C       400.0 G 3       209.9                 40.0   PIMO$    01C11231

G3-25179P    04                         01/14/977  S     FRAN 10/23/985 CONN MUT LIFE INS  WELL
 1   NU4SE4SE4                X IRRIOATIOM           C      1600.9 G         715.0                137.0   $RK      01011251

G3-20216P    05                         06/02/971  S     FRAN 10/16/985 BURLINGTON NORTHER WELLS
 3   NE4SW4, NE4SE4, NE4NW4     IRRIGATION           C      2700.0 C        1290.0                320.0   $RM      0201I33I

G3-26536I    05                         04/16/980  S     FRAN 10/16/985 BURLINGTON NORTKEP WELL
 1   NE4NW4                     IRRIGATION           C       900.0 S         260.0                 70.0   KRM$     32011031

G3-27182B    05                         86/557981        FPAN 07/07/982 BUPIINGTON N3STHER WELLS
 3   NE4NU4/NE4SW4/NE4SE4       IRRIGATION           C       945.0 C         420.0                105.0 S MCIEBIKES

G3*07651CAL  06 07651A  07195A  060204  06/10/965        FRAN 10/15/965 ROGERS WALLA WALLA WELL
 1   SL-7                       CCMMEPCIAL/INGUSTPIAL C      650.0 G 2      1419.0    2                                    2 2 8
                                IRPICATION           C       650.0 C 2      1419.0    2          50.0            IS        2 2 2

G3*09196P    06 09196   06893           0T/02/968        FRAN 01/20/969 ROGERS NALLA WALLA WELL
 1   GL-7                       COMMERCIAL/ZNOUSTRIAL C      180.0 0 3        90.0                        /
                                COMMERCIAL/INDUSTRIAL C      180.0 G 3       200.0    2                   /
                                IPRIGATION           C       160.0 G 3       200.0    2   S      50.0     /

G3*00932C    06 12306                   11/29/971        FRAN 12/25/973 TIPPETT ROBERT A   WELL
 1   KU4SE4SE4                  IRRIGATION           C      1200.0 6         675.0                135.0   MR       C3011101

G3-22846PAL  06                         03/13/974        FRAN 12/21/976 ROGERS WAILA WALLA WELLS
 2   SW4SW4                     COMMEPCIAL/INBUSTBIAL C     1060.0 G 2      1709.0    2                   RB$                2 2 0
                                IRRIGATION           C      1060.0 G 2      1739.0    2               162.0   PBE      C1011231 2 2 2

G3-24761P    06                         01/24/976  S     FRAM 10/23/985 MINNEHAN JAMES F   WELL
 1   SC4SU4NU4                  DOMESTIC SINGLE      C        30.0 G           1.0                        $RK

G3-28268P    07                         06/02/972  S     FRAN 10/16/965 BURLINOTON NO9THE9 WELLS
 2   SE4NE4, GL-2               IRRIGATION           C      2500.0 G        1008.0                  2.5   MR       02011031

GI-24674C    07                         05/13/975        FRAN 05/18/976 AMERICAN FERT I CH WELI
 1   SU4NC4                     COMMERCIAL/INDUSTRIAI C      100.0 G           5.0                        BRB$

G3-009310    08 11440                   12/17/970        FRAN 10/25/973 TIPPETT PCBIPT A   WELI
 1   SW4SE4                   X IPRIGATIUN           C      1100.0 U         540.0                135.0   WMR      03011101

G3-01043P    06 11650                   03/01/971  S     FRAN 11/14/984 TIPPETT JANET C    WCILS
 2   NEA                      X IPRIGATION           C      1400.0 G         645.0                140.0   $RK      IS

G3-27581P    06                         04/02/985        FPAM 12/21/983 TIPPETT JANET C    WELL
 1   NE4NE4                     DOMESTIC MULTIPLE    C        30.0 G           4.8                        $RRO

GJ-24978C    09                         05/04/976  S     FRAM 12/15/976 CONN MUT LIFE IMS  WELI
 1   ME4SE6                   X IERIOATION           C      1600.0 G         835.0                160.0   PIB$     01P11231
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CONTROL # / PTS P LOC. OF POD/PCW	SEC #	OLD APPL	OLD PERM	OLD CERT	DATE OF PRIORITY	S C A T C M	PURPOSE OF USE	CNTY / USE TYPE	PERMIT DATE / INST QI	C P S M U U	NAME	ANNUAL QA	C P S M U W	SOURCE OF APPROPRIATION TRIBUTARY OF	IRR AC	C S M O	PRO- VISOS	TIME OF USE	R R P I A C
WATER RESOURCE INVENTORY AREA- 36																			
TOWNSHIP - 09 RANGE - 33 E																			
G3-25263P	09				03/21/977	S		FRAM	10/23/965		WORSHAM RONALD ET			WELL					
1 SW4NE4NW4							DOMESTIC SINGLE	C	1440.0 G 2			2.0					$K		
							X IRRIGATION	C	1440.0 G 2			622.0			157.0		$K	01011231	
G3-25297P	09				03/21/977	S		FRAN	10/23/965		COX HAROLD S			WELL					
1 SW4NE4NW4							DOMESTIC SINGLE	C	1449.0 G 2			2.0					$PX		
							X IRRIGATION	C	1460.0 G 2			622.0			157.0		$PK	01011231	
G3-25296P	09				03/21/977			FRAN	09/26/977		COX HAROLD S			WELL					
1 NW4 NW4							DOMESTIC SINGLE	C	100.0 G 3			2.0	2				RIB$		
							STOCK WATERING	C	100.0 G 3			2.0	2				RIB$		
							X IRRIGATION	C	100.0 G 3			24.0			5.0		RIG$	01011231	
G3-22263P	10				12/17/973	S		FRAN	10/11/965		CONN MUT LIFE INS			WELL					
1 SW4NW4							X IRRIGATION	C	1590.0 G			681.0			130.0		PM$	02151415	
G3-24973C	10				05/04/976			FRAN	12/15/976		CONN MUT LIFE INS			WELL					
1 NW4SE4							X IRRIGATION	C	1600.0 G			640.0			155.0		$PK	01811231	
G3-25284P	10				03/21/977	S		FRAN	10/19/965		WORSHAM RONALD			WELL					
1 NW4 NE4							DOMESTIC SINGLE	C	1440.0 G 2			2.0					$RK		
							X IRRIGATION	C	1640.0 G 2			626.0			157.0		$RK	01011231	
G3-20249C	15				06/02/972			FRAN	06/03/974		BURLINGTON NORTHER			WELLS					
2 NW4, SE4							X IRRIGATION	C	4320.0 G			1940.0			460.0		BMP$	02011031	
G3-01546C	16	10613	10209		06/07/970			FRAN	03/16/971		WA ST O N R			WELLS					
5 S2NW4. E2SW4. N2SE4							DOMESTIC SINGLE	C	5200.0 G 3			2720.0	3				RM$		
							STOCK WATERING	C	5100.0 B 3			1710.0	3				RM$		
							X IRRIGATION	C	5200.0 G 3			2720.0	5		520.0		RM$	IS	
03-01348C	17	11112	10406		07/31/970			FRAN	09/23/971		COLUMBIA EAST			WELL					
1 SE4SE4							X IRRIGATION	C	1200.0 G			681.4			130.0		.QPM	03011101	
G3*292500	17				06/02/972			FRAN	01/14/974		BURLINGTON NORTHER			WELL					
1 NE4NE4							X IRRIGATION	C	1300.0 G			520.0			130.0		BMR	02011031	
G3-24569C	17				09/23/975			FRAN	05/06/976		DUGAS JAMES			WELL					
1 L-142 PL-COL I - SEJ							DOMESTIC MULTIPLE	C	50.0 G			41.0					RIB$		
G3*05073C	19	05075	DC622	03730	12/52/953			FRAN	05/22/059		PASCO CITY OF			WELL					
1 GLL							IRRIGATION	C	350.0 C			300.0			100.0		AE	IS	
G3-22216C	19				11/30/973			FRAN	04/12/974		PONTAROLO FRANK			WELL					
1 NE4SE4SW4							IRRIGATION	C	13.0 G			1.3			.3		P$	04010930	
C3*00847S	20	00847		00395	00/007/825			FRAN	7 7		NORTHERN PACIFIC R			WELL					
1 SW4NW4							HEAT EXCHANGE	C	400.0 G			108.0							
G3*00946C	20	00946	00901	00305	07/03/946			FRAN	01/06/949		SEATTLE HARDWARE C			WELL					
1 NE4NW4SW4							DOMESTIC SINGLE	C	166.0 G 3			50.0	2						
							COMMERCIAL/INDUSTRIAL	C	166.0 G 3			50.0	2						
							X IRRIGATION	C	166.0 G 3			16.0			4.0			IS	
G3*04615C	20	04615	04235	02817	06/27/956			FRAN	05/03/957		CLOSE I N			WELL					
1 LI CLOSE ADD PASCO							DOMESTIC SINGLE	C	15.0 G 2			4.0	2 U				AE		
							X IRRIGATION	C	15.0 G 2			4.0	2		1.0		AE	IS	
G3*05152C	20	00152	04663	03391	03/04/959			FRAN	06/23/959		MUUU I V			WELL					
1 12 CAROLE-LEE ADDN							X IRRIGATION	C	15.0 G			6.0			2.0			IS	
G3*10640C	20	10640	10005	07614	02/10/970			FRAN	12/11/970		FANNING J W			WELL					
1 NW4 NW4 NE4							DOMESTIC SINGLE	C	70.0 C 2			2.0					QR		
							X IRRIGATION	C	70.0 G 2			30.0			7.0		QR	02011101	
G3-01238C	20	10665	10298		02/25/970			FRAN	05/14/971		FRONTIER MACHINERY			WELL					
1 S2 4							COMMERCIAL/INDUSTRIAL	C	200.0 G 2			20.0					MR		
							X IRRIGATION	C	200.0 G 2			65.0			12.5		MR	02010631	
03-22447C	20				01/25/974			FRAN	05/20/974		PASCO CITY OF			WELL					
2 NE4 SW4							DOMESTIC SINGLE	C	140.0 G 2			2.0					RIU		
							X IRRIGATION	C	140.0 G 2			55.4			15.0		R$U	03010930	
G3-01176C	21	10693	09974		03/11/970			FRAN	11/23/970		COLUMBIA EAST			WELL					
1 SW4NE4NW4							X IRRIGATION	C	765.0 G			645.0			268.0		NP	03011101	

CONTROL # / PTS P	SEC / LOC. OF PCD/PCU	OLD APPL	OLD PERM	OLD CERT	DATE OF PRIORITY / PURPOSE OF USE	CNTY / USE TYPE	PERMIT DATE / INST QI	NAME	ANNUAL QA	C P S	SOURCE OF APPROPRIATION	IRR AC	PROVISIONS	TIME OF USE	R S E	TRIBUTARY OF
WATER RESOURCE INVENTORY AREA- 36																
TOWNSHIP - 09	RANGE - 30 E															
03*04909C	22	069C9	04681	JOSS71	10/17/963	FRAN	01/31/964	DIETRICH J			WELL					
1	SW4NW4				X IRRIGATION	C	90.0 G		72.0			38.0	AE	IS		
G3-00247PAL	22	10E63A			05/11/970	FRAN	01/25/973	TOMLINSON DAIRY FA			WELLS					
J	S2				DOMESTIC MULTIPLE	C	3500.0 G 3		3.0				MR		2 2 0	
					STOCK WATERING	C	3500.0 G 3		336.0				MR	01011231	2 2 0	
					X IRRIGATION	C	3500.0 G 3		1803.0			345.0	MR	01011231	2 2 2	
C3-24724C	22				01/09/976	FRAN	05/15/974	PAIOMAREZ JOE			WELL					
1	NE4SE4				DOMESTIC SINGLE	C	120.0 G 3		2.0	2			$P			
					STOCK WATERING	C	120.0 G 3		2.0	2			$R			
					X IRRIGATION	C	120.0 G 3		124.0			24.0	$R	C3011031		
G3-27049B	22				05/19/981	FRAN	10/17/982	BUCOEN RAY M			WELL					
1	E2SW4NE4				DOMSSTIC MULTIPLE	C	300.0 G 2		13.4				PK			
					X IRPIGATION	C	300.0 G 2		70.0			20.3	PK	IS		
C3*C6534C	27	94534	064C3	04810	10/30/962	FRAN	11/22/963	USDI EPA			WELL					
I	NW4 SE4				OCMESTIC SINGLE	C	230.0 G 2		114.6	2			AN			
					HEAT EXCHANGE	C	230.0 C 2		114.6	2			AN			
G3-00267PBL	27	10563B			05/11/970	FRAN	01/25/973	TOMLINSOM DAIRY FA			WELL					
3	W2NW4				DOMESTIC MULTIPLE	C	3500.0 G 3		3.0				MR		1 2 0	
					STOCK WATERING	C	3500.0 C 3		336.0				MR	01011231	2 2 0	
				HO	X IRRIOATION	C	3500.0 G 3		1806.0			345.0	MF	01011231	2 2 2	
G3-248638	27				02/26/981	FRAN	04/02/982	EASTERN WA ID LETT			WELL					
1	SE4SW4				DOMESTIC SINOLE	C	70.0 G 2		1.0				PM$			
					X IRSIGATION	C	70.0 G 1		17.5			5.0	PM$	IS		
C3-27795C	27				03/14/984	FRAN	03/29/985	WESTERN FARM SERV			WELL					
1	SE4NW6				DOMESTIC SINGLE	C	100.0 G 2		25.0	2			$RK			
					COMMCSCIAL/INDUSTPIAL	C	100.0 G 2		25.0	2			$RK			
G3*01141C	28	P7IAI	05497	06071	01/11/768	FRAN	05/28/460	DUNGARWER C P			WELL					
1	NW4NW4SE4				DOMESTIC MULTIPLE	C	150.0 G		8.0				RNE			
G3-20149C	28				04/35/972	FRAN	06/27/973	SPOONER HEMRY 8 JU			WELL					
1	NW4 NE4 SE4				DOMESTIC MULTIPLE	C	30.0 G 2		7.0				HNPTPN			
					X IPPIGATICM	C	30.0 G 2		5.0			1.0		03011051		
C3-23824C	28				08/28/974	FRAN	08/25/975	REISINOER LESLIE H			WELL					
1	SEA SEA				DOMESTIC SINOIC	C	35.0 G 3		2.0	2			R$			
					STOCN WATERING	C	35.0 G 3		2.0	2			R$			
					X IPRIGATION	C	35.0 G 3		8.56			2.0	P$	0101123I		
C3-23828C	28				08/28/974	FRAN	08/25/975	REISINGBR RENNETH			WELL					
L	SE4 SE4				DOMESTIC SINGLE	C	70.0 G 3		2.0	2			RL			
					STOCK WATERING	C	70.0 G 3		2.0	2			R$			
					X IRRIGATION	C	70.0 0 3		34.07			8.5	R$	0101123I		
G3-24839C	28				03/26/976	FRAN	09/08/976	MANN W F			WELL					
1	SW4SE4				X IRRIGATION	C	250.0 C		52.41			10.0	R$	IS		
03-27363P	28				07/01/982	FRAN	10/24/983	LAURENCE PCBEPT S			WELL					
1	NW4SE6				DOMESTIC MUITIPIE	C	110.0 G S		23.5		S		$RK			
B3-277TEB	28				02/27/984	FRAN	12/06/984	JOHNSON GENEVIE			WELL					
1	LOT 1 BL 12 CASH ADDN PASCO				DOMESTIC SINGLE	C	60.0 G 2		1.0				$RK			
					X IRRIGATION	C	60.0 G 2		22.0			5.5	$RK	IS		
G3-27864P	28				07/31/984	FRAN	03/29/985	PASCO CITV OF			WEIL					
1	NW4SW4				IRRIGATION	C	250.0 G		40.0			10.0	$RK	IS		
03*08151C	29	08241	07739	05857	08/22/968	FRAN	01/17/967	CURRIES HOSPITAL			WELL					
I	111 815 SYLVESTER FK ADO				OCMESTIC MULTIPLE	C	50.0 G 2		10.0	2			A			
					X IPRIGATION	C	50.0 G 2		10.0	2		.3	A	IS		
G3-27943P	30				01/14/985	FRAN	10/31/985	PASCO CITY OF			WELL					
1	ME4SW4				X IPPIOATION	C	250.0 G		40.0			10.0	$PK	IS		
C3-22727C	31				03/08/976	FRAN	10/10/974	PASCO CITY OP			WELL					
1	GL-7				IRRIOATION	C	73.0 G		34.4			7.81	P$	03010930		
S3*17900C	31	17908	13179	11680	05/13/983	FRAN	09/17/983	PASCO CITY OF			COL R (WALIUIA LK)					PACIFIC OCEAN
1	GL8				OCMESTIC MUNICIPAL	C	35.0 C S		7000.0		S		SO			

PECOPOED UATER RIGHTS OF THE DEPARTMENT OF ECOLOOY RECIOH 4 PAGE 2030 REPORT OATE 5/ 2/87

CONTROL # SEC OID APPL OLD PEFN OLD CERT DATE OF PFICPITY S C A T C M CNTY PERMIT DATE HAME SOURCE OF APPROPPIATICN TRIBUTARY OF
SUF P PTS P LOC. OF POD/POW (CHG CS) PURPOSE OF USE USE TYPE INST Q1 C R S M U U ANNUAL QA C P S M U U IPR AC C S M U PPO-VISOS TIME OF USE R P E I A C

WATER RESOURCE INVENTORY AREA- 31

TOWNSHIP - 09 RANGE - 25 E

1 NW4NE4 HICHWAY C 450.0 G 2
ENVIRONMENTAL QUALITY C 450.0 G 2

TOWNSHIP - 09 RANGE - 29 E

S4-01217C 28 20104 13102 02/15/967 BENT 02/29/988 BENTON CO PK-REC D UNN SPRS COL R (WALL LK)
1 GL 7 4 8 FISH PROPAGATION N 1.0 C 2
PIC 4 BEAUTIFICATION N 1.0 C 2

S4-279413 28 02/15/982 BENT 03/02/983 BENTOM CO PK/REC 0 COL P (WALLULA LK) PACIFIC OCEAN
1 SW4 IRRIGATION C .25 C 16.0 4.0 S54 04011031

G4-26844N 31 06/25/980 BENT 01/09/981 KEMNEWICK SCH DI # UELL
1 NE4SW4 IRRIGATION C 50.0 G 40.0 .1 RK 04011C31

S4-288258 31 11/04/985 BENT 03/11/996 LOS CHUPCH UELL
1 NW4SW4 IRRIGATION C 60.0 G 4.4 1.1 RK 04011001

G4-27559P 32 07/14/981 BENT 09/03/982 KENNEUICK CITY OF UELL
1 NE4NE4 DOMESTIC MULTIPLE C 3500.0 G 5823.0 KP

G4-26252C 33 06/01/979 EENT 04/22/980 KENNEUICK SCH 015 WELL
1 NW4SW4 IRRIGATION C 50.0 G 20.0 5.0 RK 04011031

G4*04539C 35 04539 04372 03897 02/27/957 BENT 11/19/957 KENNEWICK CITY OF INFIITRATION TR
2 CLI DOMESTIC MUNICIPAI C 13500.0 C 5600.0

S4-23963C 35 05/06/975 BENT 05/28/975 BENTON CO PKS6REC COL 9 (WALIULA LK) PACIFIC OCEAN
1 GL 1 IRRIGATION C .5 C 70.0 13.5 S 04011001

G3+20016C 36 03/09/972 BENT 04/16/973 WA ST HIGHWAY COMM WEIL
1 NW6SW6 IRRIGATION C 120.0 G 75.0 16.3 R 04C11C31

TOWNSHIP - 09 RANGE - 30 E

G4*01390C 31 01390 01248 0180S 02/23/950 BENT 08/23/950 KENNEWICK CITY OF WELIS/IMFILTRATION TR
5 GL-2 DOMESTIC MUNICIPAL C 6950.0 G 6800.0

S4-25479C 31 04/10/977 BENT 12/05/978 KENHEUICK CITY OF COI R (UALLULA LK) PACIFIC OCEAN
1 SW6SW6 DOMESTIC MUNICIPAL C 55.7 C 2 10400.0 S S
DOMESTIC MUNICIPAL C 55.7 C 2 5200.0 S

PECORDEO WATER RIGHTS OF THE DEPARTMENT OF ECOLOGY PCOION 3 PAGE 1478 REPORT DATE 5/ 2/67

CONTROL # / PTS P LOC. OF PCO/PQU	SEC	OLD APPL	OLD PERM	OLD CERT	DATE OF PRIORITY / PURPOSE OF USE	S T	CNTY / USE TYPE	PERMIT DATE / INST QI	NAME / C R S	ANNUAL QA	C P S	SOURCE OF APPROPRIATION	IRR AC	PROVISOS	TIME OF USE	P A C
WATER RESOURCE INVENTORY AREA 36																
TOWNSHIP - 09 RANCE - 30 E																
S3*10704C	33	10704	10192	07205	03/12/970		FPAN	03/04/971	PASCO PORT OF			WELL				
1 SW4 SEA					DOMESTIC MUNICIPAL		C	375.0 0 2		196.0				HP		
					X IRRIGATION		C	375.0 G 2		13.0			3.0	HP	01011231	
03-01349CAL	33	11111A	10403A		07/31/970	S	FPAN	09/13/971	COLUMBIA EAST			WELL				
1 SE4NE4					X IRRIGATION		C	4500.0 G		2588.0			495.0	PH	03011101	2 2 2
G3-24314C	33				01/24/975		FRAN	/ /	STORY JOEL C			WELL				
1 SW4NE4NW4					STOCK WATERING.		C	750.0 G 2		1.0				RNI		
					X IRRIGATION		C	750.0 G 2		362.0			73.0	PMI	E1011231	
G3-01349CBL	34	11111B	104030 HO		07/31/970	S	FRAN	09/23/971	COLUMBIA EAST			WELL				
1 SW4NE4					X IRRIGATION		C	4500.0 G		2568.0			495.0	PM	03011101	2 2 2
G3-20442C	34				12/11/972		FRAN	01/25/974	HILL CECIL C			WELL				
1 S2 SW4 SE4					DOMESTIC MULTIPLE		C	750.0 G 2		116.0				PRI		
					X IRRIGATION		C	750.0 C 2		81.0			10.0	RHI	04011130	
G3-00673C	35	12071			07/13/971		MALL	06/05/973	USCE			WELL				
1 SE4 SE4					DOMESTIC GENERAL		C	200.0 C 2		14.0				HPP		
					X IRRICATION		C	200.0 G 2		37.0			100.0	HRP	03011001	
TOWNSHIP - 10 RANGE - 28 E																
G3*01021C	02	01021	01302	00510	10/25/946		FPAN	08/11/950	USBR			WELL				
1 GL4					DOMESTIC SINGLE		C	30.0 G		20.0				A		
C3-27465B	12				03/04/983		FRAN	11/07/983	YOUNG JOHN R			WELL				
1 NE4SE4					DOMESTIC SINGLE		C	108.0 G 2		1.0				MIDE		
					IRRIGATION		C	108.0 G 2		42.0			12.0	MIPK	IS	
83-241530	13				01/27/979		FRAN	07/05/979	LUNDRIGAN MARION H			WELL				
1 L-3 B-1 RIVERRIDGE ESTATES					DOMESTIC SINGLE		C	20.0 G 3		2.0	2			RIBI		
					STOCK WATERING		C	20.0 G 3		2.0	2			PIBI		
					IRRIGATION		C	20.0 G 3		2.0			.75	RIBI	01011[illegible]	
G3-27504P	13				04/07/963		FRAN	01/06/984	SANDERSON GEORGE			WELL				
1 LOT A RIVER RIDGE ESTATES					DOMESTIC MULTIPLE		C	100.0 C		29.0				$RK		
TOWNSHIP - 10 RANGE - 29 E																
G3-25354P	01				04/06/977	S	FPAN	10/18/965	OANDEIL BCG FARMS			WELLS				
3 SE4SW4 6 NE4SE4					DOMESTIC MULTIPLE		C	150.0 G 2		6.0				LRK		
					COMMERCIAL/INDUSTRIAL		C	150.0 C 2		2.0				LRK		
G3-24208P	06				04/04/979		FRAN	11/20/979	BETA GROUP/BOLANO			WELL				
1 FU 168 BL 10 C 5 P					DOMESTIC MULTIPLE		C	80.0 G		24.H				9[illegible]		
G3*E3730C	10	03730	03530	02300	00/10/954	E	FRAN	01/14/955	USBR			WELL				
1 NW4NW4					DOMESTIC GENERAL		C	18.0 G		28.6						
33*00266C	19	00266	00176	00753	04/22/946		FRAN	10/22/946	USBR			WELL				
1 SW1SE4					DOMESTIC MULTIPLE		C	100.0 C		100.0						
33-27907IAL	IS				10/03/964		FRAN	10/31/985	BURLINGTON NORTHER			WELLS				
4 S2SE4					IRRICATION		C	4500.0 G		1800.0			450.0	MI[illegible]	IS	2 2 2
C3-27251P	24				04/09/982		FPAN	03/04/963	BURLINGTON NORTHER			WELL				
1 SE4SE4					COMMERCIAL/INDUSTRIAL		C	30.0 G		20.0				MI[illegible]		
G3-27907ISL	24				10/03/984		FPAN	10/31/983	BURLINGTON NORTHER			WELL				
1 S2NW4					IRRIGATION		C	4500.0 G		1800.0			450.0	MIPK	IS	2 2 2
G3-08823P	25	12502			02/23/972	S	FPAN	10/23/985	POREGRO CO/BURLINO			WELL				
1 SE4SW4[illegible]					COMMERCIAL/INDUSTRIAL		C	35.0 C		19.0				MP		
03-20237P	25				06/02/972	S	PRAM	10/16/965	BURLINGTON NORTHER			WELL				
1 SW4SW4					IRRIGATION		C	600.0 G		280.0			70.0	$OM	C2011031	
G3-24528PAL	27				05/05/975	S	FRAN	07/10/965	BURLINGTON NORTHER			WELL				
1 NE4					IRRIGATION		C	9995.0 G		2220.0			5.55	RB[illegible]	IS	2 2 2
G3-01063C	18	06596	06200		01/29/963		FRAN	04/12/963	BHOCOITTI WILLIAM			WELLS				
2 NW4,E2SE4SW4					IRRIGATION		C	1750.0 G		800.0			180.0	B	IS	
G3-26021B	29				07/27/978		FRAN	00/30/979	JOB NORDERT			WELL				

06/08/87 15:18 DEPT OF ECOLOGY / HQ OLYMPIA WA 008

REFERENCE 10

EXHIBIT 5–14

FORM NO 9-1904— A

SITE NO. ____________

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
GROUND WATER SITE INVENTORY
SITE SCHEDULE

Recorded by ____________ Date ____________

Check One ___ English ___ Metric Units

GENERAL SITE DATA (0)

SIM Mont No [ ] (5–19) RG Number [R = 0 *] Transaction [T = A D M V *] add, delete, modify, verified

Site-Type [2 = C D H I M P T W *] collector, drain, sinkhole, connector, multiple, pond, tunnel or shaft, well

Data Reliability [3 = C U L M *] C/M checked, unchecked, location est., minimal separate data

Reporting Agency [4 = *]

Project No. [5 = *] District [6 = *] State [7 = *] County (or town) ____ [8 = *]

Latitude [9 = *] deg min sec Longitude [10 = *] deg min sec Lat-Long Accuracy [11 = S F T M *] Hs. S mc 10 mc. mile

Local Number [12 = *] Land Net Loc. [13 = S T R *] 1/4 1/4 1/4 section, township, range, merid

Location Map [14 = *] Scale [15 = *]

Altitude [16 = . *] Method of Measurement [17 = A L M *] altimeter, level, map Accuracy [18 = *]

Topo Setting [19 = D C E F H K L Ø P S T U V W *] depression, stream channel, dunes, flat, hilltop, sink, swamp, offshore, sediment, hillside, terrace, undulating, valley flat, upland draw

Hydrologic Unit (OWOC) [20 = *]

Date of First Construction/Completion [21 = / / *] month day year

Use of Site [23 = A D E G H Ø M P R S T U W X Z *] anode, drain, geo-thermal, seismic, heat reserve, observ-ation, mine, oil or gas, recharge, repress, test, unused, with-drawal, waste, destroyed

Use of Water [24 = A B C D E F H I M N P R S T U Y Z *] air cond., bottling, commercial, dewater, power, fire, domestic, irrigation, medicinal, industrial, public supply, recreation, stock, institution, unused, detail, other

Secondary Water Use [25 = *] Tertiary Use of Water [26 = *] Depth of Hole [27 = . *] Depth of Well [28 = . *] Source of Depth Data ① [29 = *]

Water Level [30 = . *] Date Measured [31 = / / *] month day year Source ① [33 = *]

Method of Measurement [34 = A C E G H L M R S T V Z *] airline, calibrated airline, estimated, pressure gage, calibrated tape, geophysical logs, manometer, reported, steel tape, electric tape, calibrated electric tape, other

Site Status [37 = D F G H Ø P R S T V X Z *] dry, flowing, nearby flowing, nearby recently flowing, obstruction, pumping, recently pumped, nearby pumping, nearby recently pumped, foreign substance, surface water effects, other

Source of Geohydrologic Data ① [36 = *] Pump Used [35 = *] no Measuring Point [266 = . *] Measuring Point Date [267 = / / *] month day year

OWNER IDENTIFICATION (1)

[R = 158 *] [T = A D M *] add, delete, modify Date of Ownership [159 # / / *] month day year

Name: Last [161 = *] First [162 = *] Middle Initial [163 = *]

OTHER SITE IDENTIFICATION NUMBERS (1)

[R = 189 *] [T = A D M *] add, delete, modify Ident [190 # *] Assigner [191 = *]

New Card Same R & T Ident [190 # *] Assigner [191 = *]

SITE VISIT DATA (1)

[R = 185 *] [T = A D M *] add, delete, modify Date of Visit [187 # / / *] month day year Name of Person [188 = *]

FIELD WATER QUALITY MEASUREMENTS (1)

[R = 192 *] [T = A D M *] add, delete, modify Date [193 0 / / *] month day year Geohydrologic Unit [195 # *]

New Card Same R thru 195

Temperature [196 # 0 0 0 1 0 *] Degrees C [197 = . *]

Conductance [196 # 0 0 0 9 5 *] μ Mhos [197 = . *]

Other (STORET) Parameter [196 # *] Value [197 = . *]

Other (STORET) Parameter [196 # *] Value [197 = . *]

FOOT NOTES:

① Source of Data Codes:

[S D Ø A R L G Z] reporting agency, driller, owner, other gov't, other reported, logs, geologist, other

USGS well records 9/30 - 21, 22, 27, 28

```
ENTER COMMAND >RUN MARCIA

LOCAL NO.           =09N/30E-21C01
LATITUDE            =461508
LONGITUDE           =1190402
DATA LOCATION       =C
WELL DEPTH          =  125.00
WELL USE            =W
NO.I WATER USE      =I
NO.2 WATER USE      =
DATE DRILLED        =09/  /1970
OPENING TOP         =   78.00
OPENING BOTTOM      =  118.00
OPENING DIAMETER    = 16.00
OPENING TOP         =  120.00
OPENING BOTTOM      =  125.00
OPENING DIAMETER    = 16.00
OWNER'S NAME        =COLUMBIA E       ,PARTNERSHIP
DATE OWNED          =09/24/1970

LOCAL NO.           =09N/30E-22E01
LATITUDE            =461504
LONGITUDE           =1190310
DATA LOCATION       =C
WELL DEPTH          = ? 110.00
WELL USE            = ?
X NO.I WATER USE    =                 Landfill well ?
NO.2 WATER USE      =
DATE DRILLED        =  /  /1962
OPENING TOP         =    0.00
OPENING BOTTOM      =    0.00
OPENING DIAMETER    =  0.00 ?
OWNER'S NAME        =DIETRICH         ,JOHN
DATE OWNED          =  /  /

LOCAL NO.           =09N/30E-22J01
LATITUDE            =461447
LONGITUDE           =1190208
DATA LOCATION       =C
WELL DEPTH          =  142.00
WELL USE            =W
NO.I WATER USE      =I
NO.2 WATER USE      =
DATE DRILLED        =02/24/1976
OPENING TOP         =  132.00
OPENING BOTTOM      =  142.00
OPENING DIAMETER    = 12.00
OWNER'S NAME        =PALOMAREZ        ,J
DATE OWNED          =02/24/1976

LOCAL NO.           =09N/30E-22J02
LATITUDE            =461443
LONGITUDE           =1190216
DATA LOCATION       =C
WELL DEPTH          =  128.00
WELL USE            =W
NO.I WATER USE      =N
NO.2 WATER USE      =
DATE DRILLED        =04/20/1972
```

OPENING TOP = 90.00
OPENING BOTTOM = 128.00
OPENING DIAMETER = 16.00
OWNER'S NAME =TOMLINSON ,DAIRY FARMS
DATE OWNED =05/08/1972

LOCAL NO. =09N/30E-22K01 *
LATITUDE =461439
LONGITUDE =1190216
DATA LOCATION =
WELL DEPTH = 138.40
WELL USE =W
NO.I WATER USE =H
NO.2 WATER USE =
DATE DRILLED = 8/ 7/1979
OPENING TOP = 133.00
OPENING BOTTOM = 0.00
OPENING DIAMETER = 6.00
OWNER'S NAME =PALMAREZ ,JOE
DATE OWNED = 8/ 8/1979

LOCAL NO. =09N/30E-22L01 * Including one irr. well
LATITUDE =461443
LONGITUDE =1190216
DATA LOCATION =C
WELL DEPTH = 145.00
WELL USE =W
NO.I WATER USE =1
NO.2 WATER USE =
DATE DRILLED =06/ /1974
OPENING TOP = 90.00
OPENING BOTTOM = 140.00
OPENING DIAMETER = 16.00
OWNER'S NAME =TOMLINSON ,DAIRY FARMS
DATE OWNED =07/ /1974

LOCAL NO. =09N/30E-22R01 *
LATITUDE =461433
LONGITUDE =1190210
DATA LOCATION =
WELL DEPTH = 139.00
WELL USE =W
NO.I WATER USE =H
NO.2 WATER USE =
DATE DRILLED = 3/22/1983
OPENING TOP = 139.00 ?
OPENING BOTTOM = 0.00
OPENING DIAMETER = 6.00
OWNER'S NAME =MARQUEZ ,GILBERT
DATE OWNED = 3/24/1983

LOCAL NO. =09N/30E-23M01
LATITUDE =461449
LONGITUDE =1190148
DATA LOCATION =C
WELL DEPTH = 157.00
WELL USE =W
NO.I WATER USE =1
NO.2 WATER USE =
DATE DRILLED =08/ /1982

```
OPENING TOP       =     0.00
OPENING BOTTOM    =     0.00
OPENING DIAMETER =   0.00
OWNER'S NAME      =USBR                ,
DATE OWNED        =03/24/1955
```

```
LOCAL NO.         =09N/30E-27F01
LATITUDE          =461405
LONGITUDE         =1190250
DATA LOCATION     =
WELL DEPTH        =  120.00
WELL USE          =W
X NO.I WATER USE  =N
NO.2 WATER USE    =
DATE DRILLED      =11/ 9/1982
OPENING TOP       =   115.00
OPENING BOTTOM    =     0.00
OPENING DIAMETER =   8.00
OWNER'S NAME      =WESTERN FARM      ,SERVICE
DATE OWNED        =12/28/1982

LOCAL NO.         =09N/30E-27G01
LATITUDE          =461405
LONGITUDE         =1190221
DATA LOCATION     =C
WELL DEPTH        =    98.00
WELL USE          =W
NO.I WATER USE    =1
NO.2 WATER USE    =
DATE DRILLED      =09/26/1975
OPENING TOP       =    83.00
OPENING BOTTOM    =    88.00
OPENING DIAMETER = 16.00
OPENING TOP       =    88.00
OPENING BOTTOM    =    93.00
OPENING DIAMETER = 16.00
OPENING TOP       =    93.00
OPENING BOTTOM    =    98.00
OPENING DIAMETER = 16.00
OWNER'S NAME      =ALDERSON            ,
DATE OWNED        =11/13/1975

LOCAL NO.         =09N/30E-27H01   *
LATITUDE          =461407
LONGITUDE         =1190216
DATA LOCATION     =
WELL DEPTH        =    93.00
WELL USE          =W
NO.I WATER USE    =H
NO.2 WATER USE    =
DATE DRILLED      = 3/17/1977
OPENING TOP       =    88.00
OPENING BOTTOM    =     0.00
OPENING DIAMETER =   6.00
OWNER'S NAME      =CREEK               ,KEN
DATE OWNED        = 3/22/1977
OWNER'S NAME      =JOHNSON&BUXBAUM,--
DATE OWNED        = 2/24/1986

LOCAL NO.         =09N/30E-27K01
```

9/30-27K1

LATITUDE	=461355	
LONGITUDE	=1190229	
DATA LOCATION	=C	
WELL DEPTH	= 121.00	
WELL USE	=	
NO.I WATER USE	= ?	
X NO.2 WATER USE	=	
DATE DRILLED	=06/ /1951	
OPENING TOP	= 0.00	
OPENING BOTTOM	= 0.00	
OPENING DIAMETER	= 0.00	
OWNER'S NAME	=USDI	Interior? ,
DATE OWNED	=06/ /1951	

LOCAL NO.	=09N/30E-28H01	
LATITUDE	=461408	
LONGITUDE	=1190327	
DATA LOCATION	=	
WELL DEPTH	= 97.60	
WELL USE	=U	
NO.I WATER USE	=U	— New owner — use [illegible] or in future ??
X NO.2 WATER USE	=	
DATE DRILLED	= 6/19/1980	
OPENING TOP	= 92.00	
OPENING BOTTOM	= 0.00	
OPENING DIAMETER	= 6.00	
OWNER'S NAME	=KEYES & SCANLAN,--	
DATE OWNED	= 6/19/1980	
OWNER'S NAME	=YENNE ,AL	(New)
DATE OWNED	= 2/27/1986	

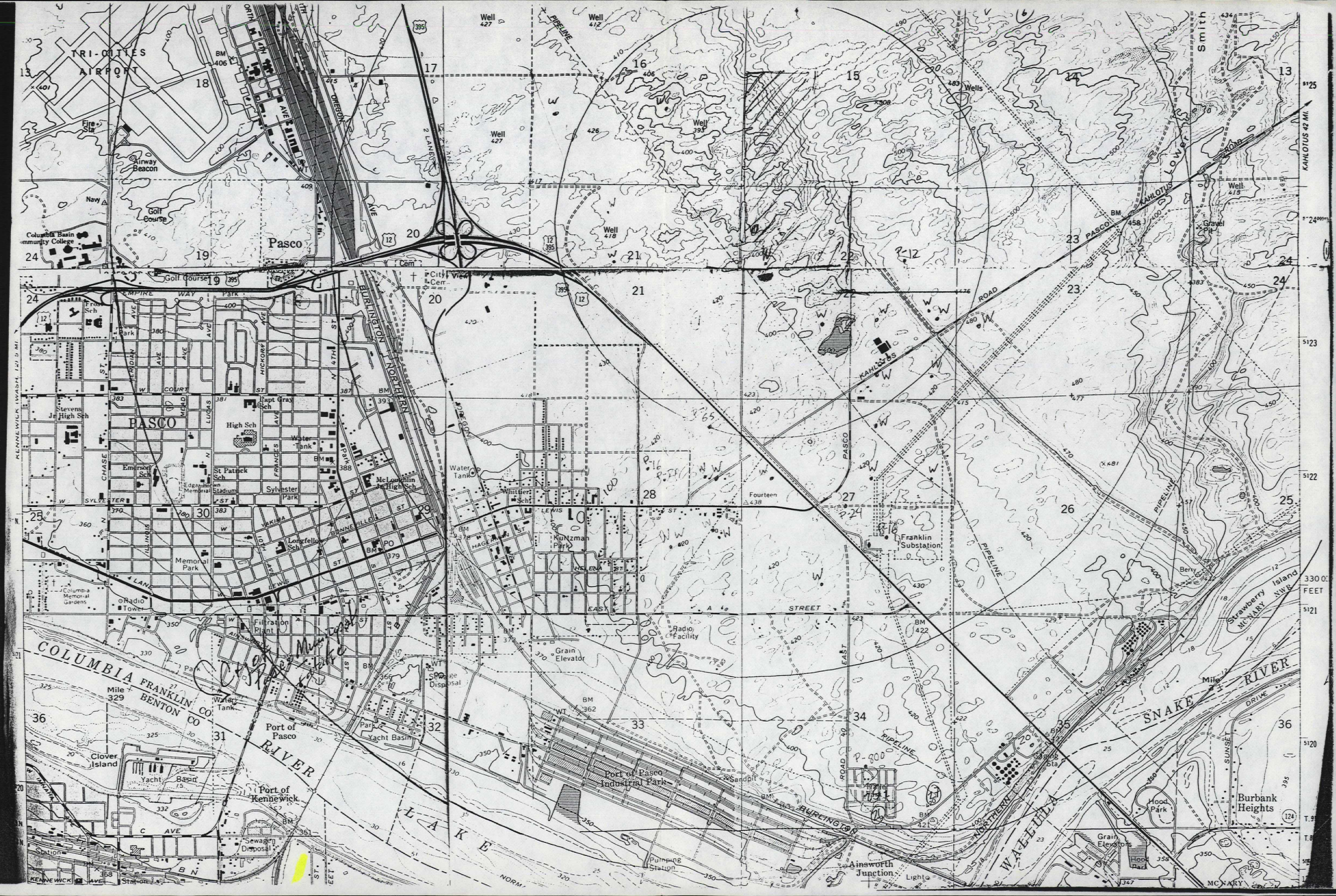
LOCAL NO.	=09N/30E-28K01	*
LATITUDE	=461358	
LONGITUDE	=1190343	
DATA LOCATION	=C	
WELL DEPTH	= 110.00	
WELL USE	=W	
NO.I WATER USE	=H	
NO.2 WATER USE	=	
DATE DRILLED	=10/ /1961	
OPENING TOP	= 0.00	
OPENING BOTTOM	= 0.00	
OPENING DIAMETER	= 0.00	?
OWNER'S NAME	=BUMGARNER ,CLINTON	
DATE OWNED	=10/ /1961	

LOCAL NO.	=09N/30E-28M01	
LATITUDE	=461355	
LONGITUDE	=1190420	
DATA LOCATION	=C	
WELL DEPTH	= 70.00	
WELL USE	=W	
X NO.I WATER USE	=1	
NO.2 WATER USE	=	
DATE DRILLED	=04/09/1985	
OPENING TOP	= 57.00	
OPENING BOTTOM	= 70.00	
OPENING DIAMETER	= 8.00	
OWNER'S NAME	=PASCO ,CITY OF	
DATE OWNED	=04/09/1985	

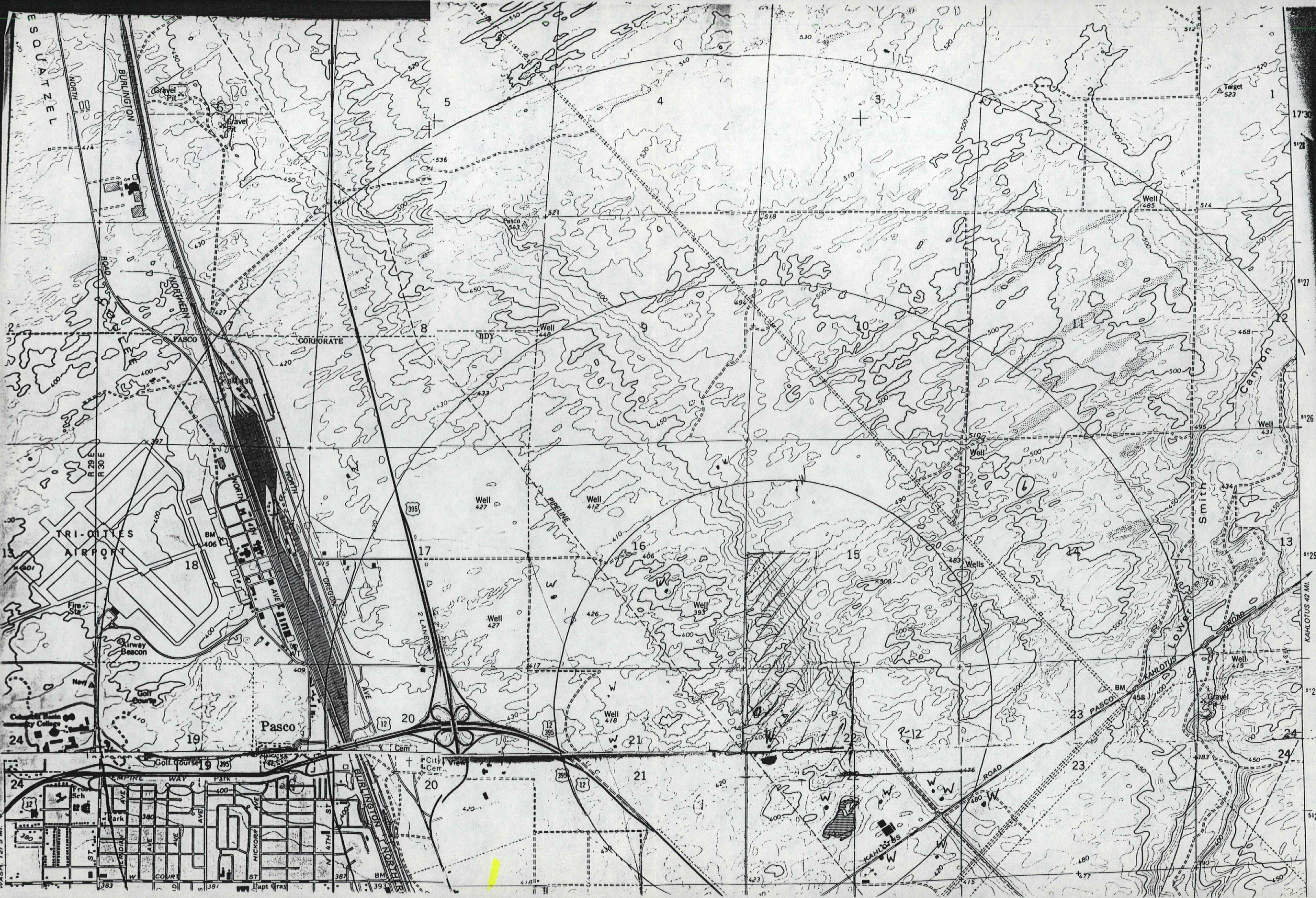
What's use

Wells Within About One Mile of Disposal Site

USGS designation	Owner	Use
9/30-22E1	John Dietrich (disposal site) 40	Irrigation of cover crop
9/30-16A1	Charlie Cox	Irrigation of potato farm (first season of use)
9/30-16F1 have	US Bur. Reclamation	Observation well
9/30-16K1	Charlie Cox	Irrigation of potato farm (first season of use)
9/30-16M1	Charlie Cox	Irrigation of potato farm (first season of use)
9/30-21F1	Columbia East	Irrigation well-unused
9/30-28H1	Devon Dall	120 Domestic, stock-water and irrigation well
9/30-28H2	Howard Craven	Well never used - no development of land
9/30-28H3	Rada Construction	Well used only intermittent in making of septic tanks dry wells, etc.
9/30-28J1	Welch Garage wrecking yard	Little used
9/30-28J2	Spooner Motel	Commercial use for domestic and sanitary wat
9/30-28J3	Cunningham	Domestic well
9/30-28K1	Rasmusson	Domestic well
9/30-28K2 and 3	Bonnie Brae Motel and Bumgarner home	Commercial and domestic wells
9/30-27B1	Dave Whitehead	Stock water
9/30-22Q1	Alderson	Domestic well
9/30-23N1	US Bur Reclamation	Observation well
9/30-26D1	US Bur Reclamation	Observation well
9/30-22J1	Tomlinson Dairy	commercial use in dairy
9/30-22K1	Tomlinson Dairy	not in use. Too low capacity.
9/30-27K1	Bonneville Power Administration	Sanitary and local irrigation



TRI-CITIES AIRPORT
Fire Sta
Airway Beacon
Navy
Golf Course
Columbia Basin Community College
Pasco
Cem
City View Cem
Golf Course
EMPIRE WAY
Park
COURT ST
Stevens Jr High Sch
PASCO
High Sch
Capt Gray Sch
Water Tank
Emerson Sch
St Patrick Sch
Edgar Brown Memorial Stadium
Sylvester Park
McLoughlin Jr High Sch
SYLVESTER
LEWIS ST
Longfellow Sch
Memorial Park
Columbia Memorial Gardens
Radio Tower
Filtration Plant
Water Tank
Whittier Sch
Kurtzman Park
HELENA ST
EAST A STREET
Radio Facility
Grain Elevator
Sewage Disposal
Yacht Basin
Port of Pasco
Port of Pasco Industrial Park
Sandpit
BURLINGTON
NORTHERN
OREGON
Pumping Station
Ainsworth Junction
COLUMBIA
FRANKLIN CO
BENTON CO
RIVER
Mile 329
Clover Island
Yacht Basin
Port of Kennewick
Sewage Disposal
C AVE
Station
KENNEWICK AVE
LAKE
WALLULA
SNAKE RIVER
Mile 2
Strawberry Island
McNARY NWR
Berry
Hood Park
Grain Elevators
Burbank Heights
SUNSET DRIVE
MC NARY
Fourteen
Franklin Substation
PIPELINE
PASCO KAHLOTUS ROAD
KAHLOTUS 42 MI.
Gravel Pit
Well
Wells
Smith
KENNEWICK (WASH.) 12.5 MI
FEET



ESQUATZEL
NORTH
BURLINGTON
NORTHERN
Gravel Pit
Target 523
Pasco
PASCO
CORPORATE
BDY
R 29 E
R 30 E
TRI-CITIES
AIRPORT
Fire Sta
Airway Beacon
Golf Course
Columbia Basin Community College
PIPELINE
OREGON
AVE
Well
Wells
BM
Cem
City View Cem
EMPIRE WAY
COURT ST
ROAD
PASCO KAHLOTUS ROAD
KAHLOTUS 42 MI.
Lower Smith Canyon

REFERENCE 11

Permit No. ....

(1) OWNER: Name Elmer Rada Address 1101 E. Cottonwood Dr. Burbank Heights

(2) LOCATION OF WELL: County Franklin E ½ SW ¼ NE ¼ Sec 28 T. 9 N., R. 30 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☐ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☒ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 110 ft. Depth of completed well 110 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8 " Diam. from 105 ft. to 110 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☒ No ☐
Type of perforator used Mills
SIZE of perforations 3/8 in. by 2 in.
60 perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Cook
Type Stainless Steel Model No.
Diam. 8 Slot size 30 from 105 ft. to 110 ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☐ No ☒ To what depth? ft.
Material used in seal
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level.... ft.
Static level 65 ft. below top of well Date 6/14/74
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 30 gal./min. with 0 ft. drawdown after 2½ hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Did not Drill Well, only perforated and installed screen. And cleaned sand out of the bottom		
NO Record of Original Well. 1-3-80 RCRane		

Work started 6/5 1974 Completed 6/14 1974

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME B & H Drilling (Person, firm, or corporation) (Type or print)

Address Rt. 3 Box 3365A - Kennewick, Wa. 993

[Signed] [signature] (Well Driller)

License No. 0046 Date 6/14, 1974

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

WATER WELL REPORT
STATE OF WASHINGTON

9/30-22E1

Application No. 6900

File Original and First Copy with the Division of Water Resources
Second Copy — Owner's Copy
Third Copy — Driller's Copy

Landfill Drinking Water Well

Permit No.

(1) OWNER:

Name

Address

(2) LOCATION OF WELL:

County Owner's number, if any—

¼ NW ¼ Section T. R. W.M.

Bearing and distance from section or subdivision corner

1088' ... 38'E of W¼ cor 27

(3) TYPE OF WORK (check):

New Well ☐ Deepening ☐ Reconditioning ☐ Abandon ☐

If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (check):

Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) TYPE OF WELL:

Rotary ☐ Driven ☐
Cable ☐ Jetted ☐
Dug ☐ Bored ☐

(6) CASING INSTALLED: Threaded ☐ Welded ☐

" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

(7) PERFORATIONS: Perforated? ☐ Yes ☐ No

Type of perforator used

SIZE of perforations in. by in.

perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

(8) SCREENS: Well screen installed ☐ Yes ☐ No

Manufacturer's Name

Type Model No.

Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(9) CONSTRUCTION:

Was well gravel packed? ☐ Yes ☐ No Size of gravel:

Gravel placed from ft. to ft.

Was a surface seal provided? ☐ Yes ☐ No To what depth? ft.

Material used in seal—

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? Depth of strata

Method of sealing strata off

(10) WATER LEVELS:

Static level ft. below land surface Date

Artesian pressure lbs. per square inch Date

Water is controlled by (Cap, valve, etc.)

(11) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☐ No If yes, by whom?

Yield: gal./min. with ft. drawdown after hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level

Date of test

Bailer test gal./min. with ft. drawdown after hrs.

Artesian flow g.p.m. Date

Temperature of water Was a chemical analysis made? ☐ Yes ☐ No

(12) WELL LOG: Diameter of well inches.

Depth drilled ft. Depth of completed well ft.

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Sand, silt	0	80
Coarse Gravel	80	84
Coarse Sand	84	105
Gravel	105	110
[illegible] for 160 gpm		

Work started 19 . Completed 19

(13) PUMP:

Manufacturer's Name

Type: H.P.

Well Driller's Statement:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME (Person, firm, or corporation) (Type or print)

Address

[Signed] (Well Driller)

License No. Date , 19

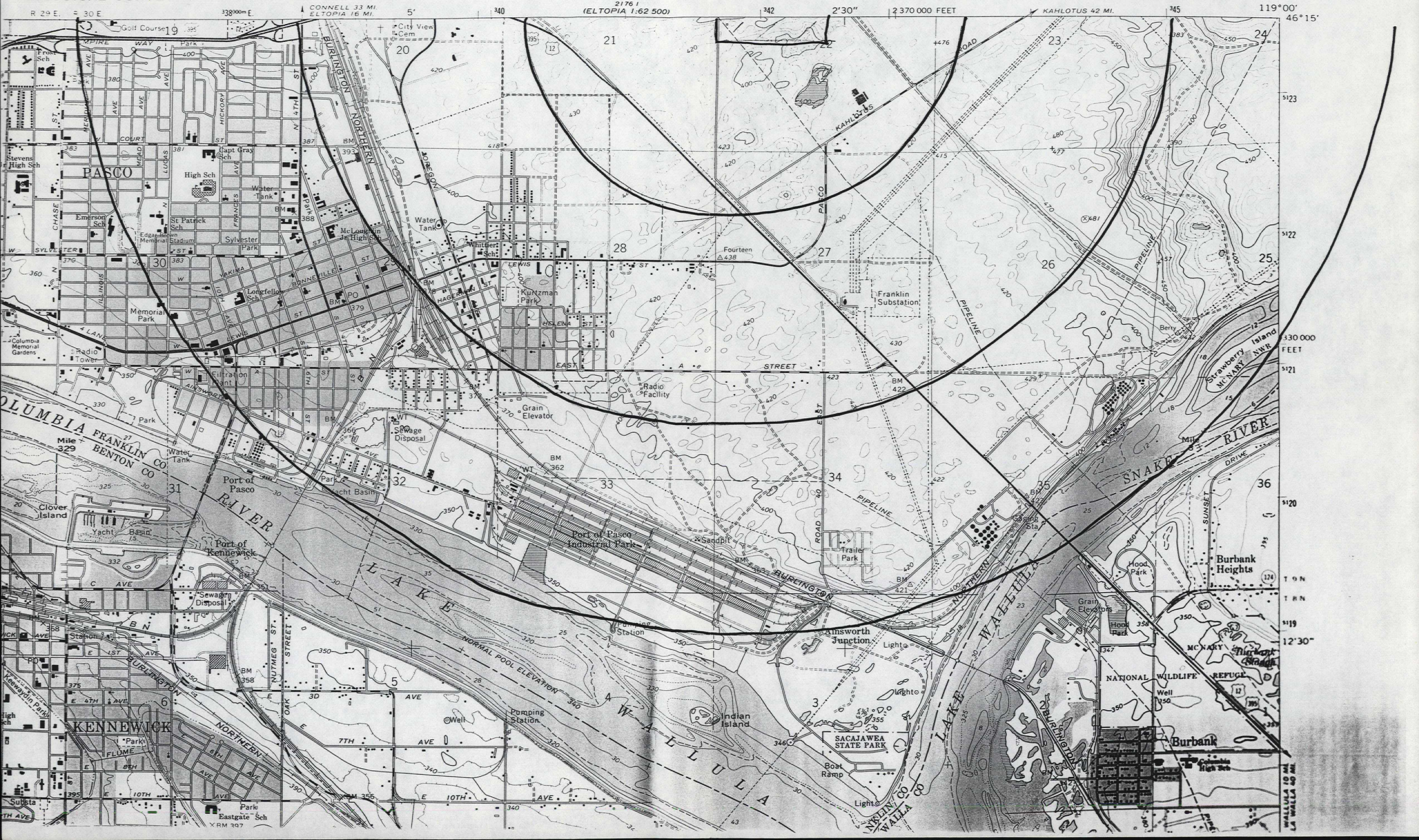
(USE ADDITIONAL SHEETS IF NECESSARY)

REFERENCE 12

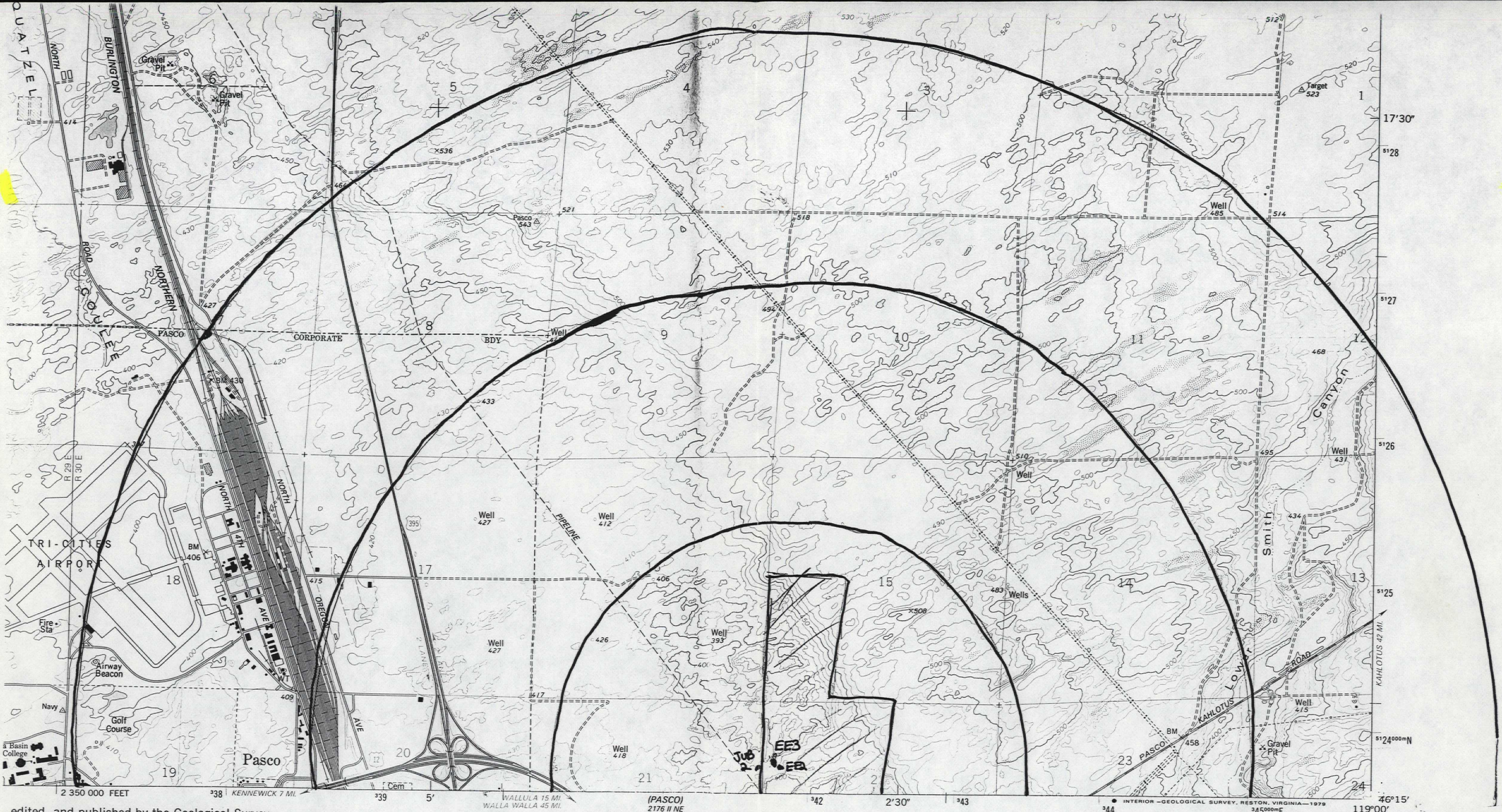
UNITED STATES
ARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PASCO QUADRANGLE
WASHINGTON
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE/4 PASCO 15' QUADRANGLE

2276 IV SW
(LEVEY SW)



REFERENCE 13



, edited, and published by the Geological Survey

USGS and NOS/NOAA

y by photogrammetric methods from aerial
ns taken 1973. Field checked 1974 . Map edited 1979

and 10,000-foot grid ticks: Washington coordinate
uth zone (Lambert conformal conic)
er Universal Transverse Mercator grid ticks,
shown in blue. 1927 North American datum
n the predicted North American Datum 1983,
projection lines 19 meters north and
east as shown by dashed corner ticks

ashed lines indicate selected fence and field lines
erally visible on aerial photographs

GN MN
1°29' / 26 MILS
20° / 356 MILS

UTM GRID AND 1979 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092

WASHINGTON
QUADRANGLE LOCATION

ROAD CLASSIFICATION

Primary highway, hard surface	Light-duty road, hard or improved surface
Secondary highway, hard surface	Unimproved road

Interstate Route   U. S. Route   State Route

GLADE, WASH.
SE/4 ELTOPIA 15' QUADRANGLE
N4615—W11900/7.5

REFERENCE 14

ecology and environment, inc.

108 SOUTH WASHINGTON, SUITE 302, SEATTLE, WASHINGTON 98104, TEL. 206-624-9537

International Specialists in the Environmental Sciences

CONTACT REPORT

Agency/ Organization: Washington Dept. of Ecology - EASTERN DISTRICT OFFICE

Address: SPOKANE, WA

Contact: CINDY CHRISTIAN

Phone: 509-456-2926

FROM: CHARLES F. PITZ

TO:

SUBJ: WATER RIGHTS INFORMATION IN VICINITY OF PASCO LANDFILL

DATE: 5/28/87

CC:

Phone call to get information on acreage irrigated by some selected wells in a 3 mile radius of the Pasco Landfill (from 5/87 Water Rights Computer Listing)

9/30 - 16 - 520 acres
9/30 - 21C - 268 acres
9/30 - 22K - 26 acres
9/30 - 22L - 345 acres
9/30 - 23M - 315 acres
9/30 - 28M - 10 acres

Charles F. Pitz

REFERENCE 15

E P A PROJECT

ECOLOGY AND ENVIRONMENT, INC.

CONTACT REPORT: REGION X-SEATTLE

TO: Tomlinson Farms, Inc

PERSON CONTACTED: Jean Tomlinson PHONE: (509) 545-4896

CONTACTED BY: Gloria Skinner

SUBJECT: Ownership + Origin of Tomlinson Dairy Pond

DATE: 5/29/87, 10:17 a.m

CC:

COMMENTS:

Pond is a man-made lagoon - to collect waste farm water which is recycled as irrigation.

Owned by: Tomlinson Farms, Inc.
Gilbert + Jean Tomlinson, Owners
3682 Selph Landing Rd.
Pasco, WA 99301

Gloria Skinner

REFERENCE 16

E P A PROJECT

ECOLOGY AND ENVIRONMENT, INC.

CONTACT REPORT: REGION X-SEATTLE

TO: Franklin County Fire Marshall

PERSON CONTACTED: Don Carter PHONE: (509) 545-3586

CONTACTED BY: Gloria Skinner

SUBJECT: Re: Fire Hazard and Explosive Potential at Pasco Sanitary Landfill and Resource Recovery Corporation.

DATE: ~~6-5-87~~ 6-1-87

CC:

COMMENTS:

Material of botanical origin is burned in a controlled manner above ground. There is no other source for above ground fire hazard.

To his knowledge, the buried material presents no explosive potential.

Gloria Skinner

Ref # 17

ecology and environment, inc.

108 SOUTH WASHINGTON, SUITE 302, SEATTLE, WASHINGTON 98104, TEL. 206-624-9537

International Specialists in the Environmental Sciences

PRELIMINARY SITE INSPECTION
REPORT OF RESOURCE RECOVERY
CORPORATION
PASCO, WASHINGTON

TDD R10-8408-22

Report Prepared By: Ecology and Environment, Inc.
Project Leader: Christopher Nadler
Date: January 8, 1985

Submitted To: J.E. Osborn, Regional Project Officer
Field Operations and Technical Support Branch
U.S. Environmental Protection Agency
Region X
Seattle, Washington

PRELIMINARY
SITE INSPECTION REPORT

Resource Recovery Corporation
TDD R10-8408-22

Site Name/Address

Resource Recovery Corporation
Pasco Sanitary Landfill
Kahlotus Road and Highway 12
Pasco, WA 99301

Investigation Participants

Peter Evers, Ecology and Environment, Inc. (E&E), (206) 624-9537
Rich Brooks, Ecology and Environment, Inc. (E&E), (206) 624-9537
Chris Nadler, Ecology and Environment, Inc. (E&E), (206) 624-9537
Mike Gallagher, Washington Department of Ecology (WDOE), Environmentalist II, (206) 459-5515

Principal Site Contacts

Larry Dietrich, Owner and Operator, Pasco Sanitary Landfill, (509) 547-4802
John Zillich, Project Manager, J-U-B Engineers (JUB), (509) 783-2144
Ron West, Operator, Resource Recovery Corp., (206) 767-0355

Date of Inspection

9/12/84 0800 hrs.

1.0 Introduction

Resource Recovery Corporation (RRC)/Pasco Sanitary Landfill (PSL) has been identified by the U.S. Environmental Protection Agency (EPA) Region X and WDOE from preliminary assessment screening as requiring additional information to accurately profile the nature and extent of past waste disposal activity at the site. E&E has been requested by EPA under Technical Directive Document No. R10-8408-22 to conduct a site inspection and evaluate the facility's status within the Agency's Uncontrolled Hazardous Waste Site Program. This report summarizes the results of E&E's preliminary site inspection and is divided into the following sections:

- Site Location
- Hydrogeology
- Disposal Practices
- Past Investigations
- Observations

2.0 Site Location

The PSL is located 1.5 miles northeast of Pasco, Washington in the SW 1/4 of Section 5 and the NW 1/4 of Section 22, Township 09 north, Range 30 east, Willamette Meridian, Franklin County (Figure 2.1). The PSL has been operated as a landfill since 1956 (1). The facility has received primarily municipal wastes with the exception of a period from 1972 to 1980 when it was also operated as a regional hazardous waste site.

The site has been owned and operated by Larry Dietrich since January 1981. Records indicate that John Dietrich owned the site from 1956 to 1981. The site was leased to the Resource Recovery Corporation during the time period when it was operated as a regional hazardous waste site (1).

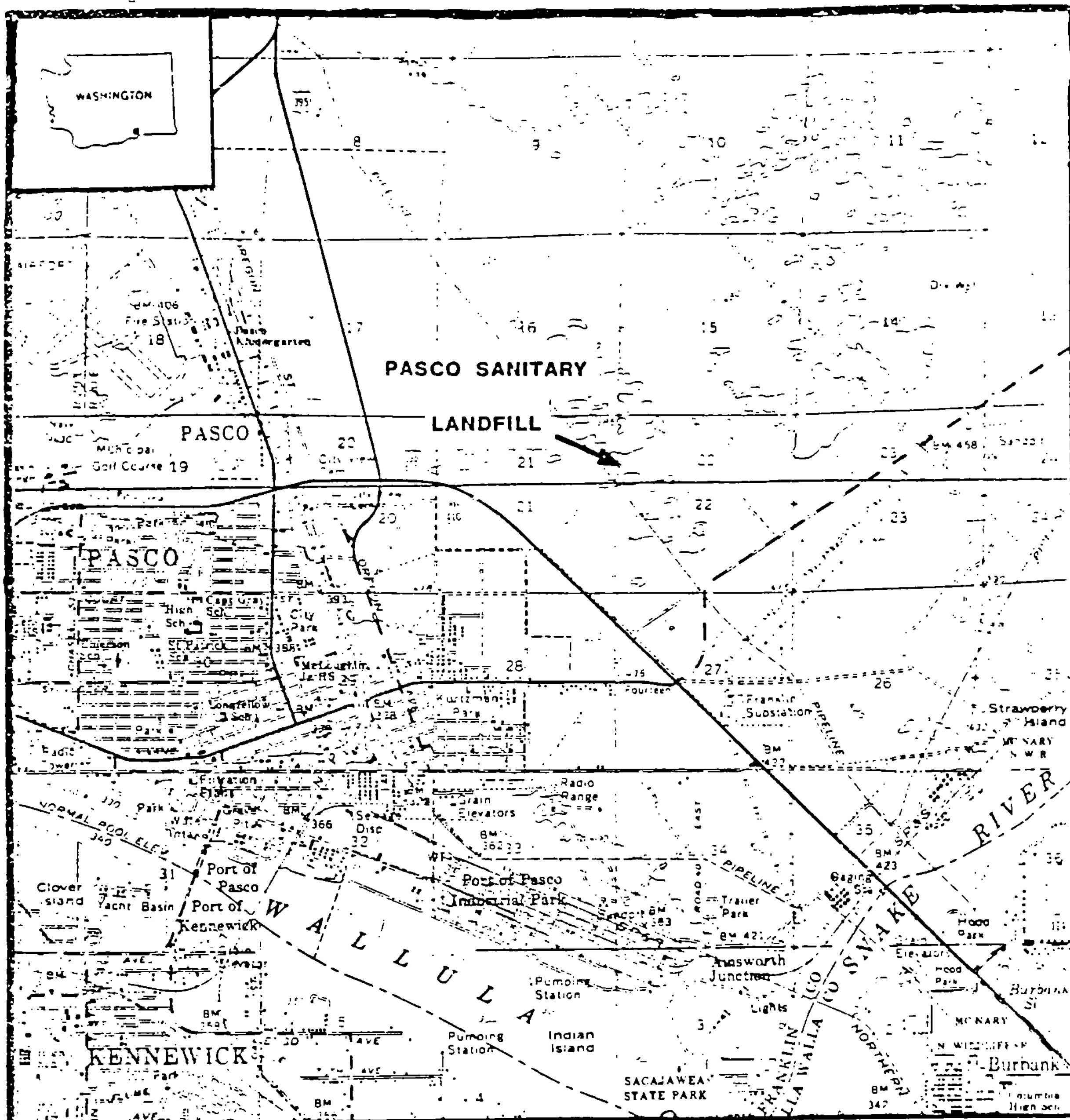
The average elevation of the site is 410 feet above mean sea level (MSL) with the land sloping approximately 1 to 3 percent to the west-southwest. The land in the general vicinity of the site is rural (population approximately 35 people within a 1 mile radius) intermixed with irrigated agricultural fields and range land.

3.0 Hydrogeology

The generalized description of the geologic units underlying PSL is presented in Table 3.1.

TABLE 3.1
DESCRIPTION OF GEOLOGIC UNITS (2,3,4)

Geologic Unit Sub-Unit	Depth (feet)	Description	Permeability (cm/sec)
Eolian Sand and Silt	surface	Light brown. Very vine sands and silts.	10^{-3}-10^{-5}
Touchet Formation	0-40	Light to medium brown. Very fine to medium grained sands. Occasionally slight to very silty.	$10^{-3} \geq 10^{-5}$
Pasco Gravels	40-60	Dark grey. Locally fine to coarse grained sands with occasional gravel.	$>10^{-3}$
Ringhold Formation			
Ringhold Sands	60-100	Dark grey. Medium to coarse grain with gravel. Gravel increasing and getting courser with depth.	$>10^{-3}$
Ringhold Gravels	100-110	Tan gravel with sand.	$>10^{-3}$
Ringhold Clays	>110-140	Blue clay.	
Yakima Basalt	>140	Basalt	10^{-2}-10^{-5}



LEGEND

CONTOUR INTERVAL: 20 FEET

SCALE: 1 INCH=1 MILE

N

FIGURE 2.1

TITLE: VICINITY MAP
FASCO SANITARY LANDFILL

CLIENT: EPA REGION X

T.D.D R10-8408-22

ecology and environment, inc.
SEATTLE, WASHINGTON

Groundwater beneath the site occurs in the Yakima Basalt sequence and the overlying sedimentary materials. The disposal site will have a potential impact only on the groundwater in the sedimentary materials (2). The depth to the water table aquifer is approximately 55 feet below the average land surface (approximately 355 feet MSL), thus the surface of the groundwater tops the Ringhold Sands and is in the Pasco Gravels (2). Groundwater movement is in a general southwesterly direction toward the Columbia River (Figure 3.1). The major use of groundwater in the area is crop irrigation. The site has a semi-arid climate with an overall negative water budget of approximately 32-inches per year (3). The two year 24-hour rainfall is 0.8-inches, with July being the driest month having less than 0.2-inches of rainfall (6).

4.0 Disposal Practices

The PSL site was operated as an open burning dump from 1956 to 1971 (1). The primary wastes accepted were municipal wastes which were dumped on the ground surface and periodicially burned. In 1971 the operation was changed from an open burning dump to a sanitary landfill; the burning activity stopped and the refuse was periodically covered with soil (1).

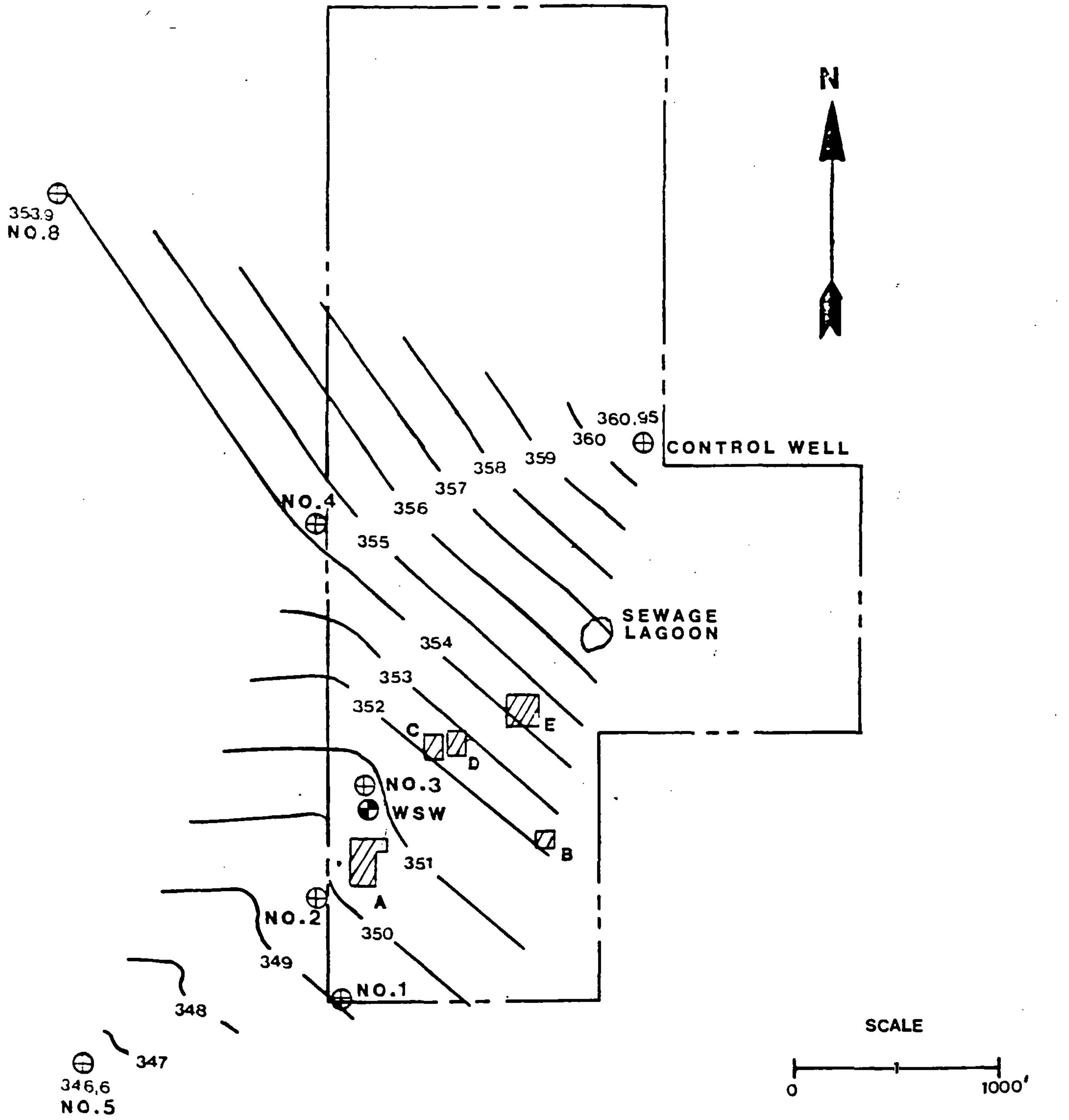
Resource Recovery Corporation leased a portion of the landfill in 1972 from the landowner John Dietrich and began operating a regional hazardous waste site. The site was managed by Larry Dietrich (John's son) as an employee of the corporation. The operator accepted and disposed of hazardous wastes in sub-sites from 1973 through 1981 under WDOE Permit #5301 issued March 21, 1973. The majority of hazardous wastes were accepted from 1972 to 1974; Table 4.1 summarizes the types, quantities and disposal locations (if known) for this period. The sanitary landfill operation also continued during the period of time Resource Recovery leased the site. In addition, in 1974 a sewage evaporation lagoon was constructed for the disposal of septic tank wastes (Figure 3.1).

Resource Recovery Corporation operated the site until January 1981, at which time the operation lease terminated and all interests RRC had in the operation reverted to the Dietrichs. Larry Dietrich has operated the site as a sanitary landfill since 1981.

5.0 Past Investigations

5.1 WDOE Investigation

In September 1973, the WDOE ordered an investigation of RRC operation at PSL. This was initiated because of the concerns of local farmers and the WDOE relating to the potential effects of the materials buried at the site on the local agricultural crops. The investigation included a site visit to ascertain current site conditions, waste types disposed of at the site and their potential impact on groundwater, as well as possible air contamination. No samples of the wastes or groundwater were collected or analyzed by the WDOE.



LEGEND

— - - — BOUNDARY LINE

INDUSTRIAL WASTE DISPOSAL SITE

NO.5 ⊕ TEST WELL AND NUMBER

WSW ◕ WATER SUPPLY WELL

—350— GROUNDWATER ELEVATION (feet MSL)

410 feet MSL APPROXIMATE SITE ELEVATION

FIGURE 3.1

TITLE: PASCO SANITARY LANDFILL
SITE PLAN AND
GROUNDWATER ELEVATIONS(5)

CLIENT: U.S. EPA REGION X

T.D.D. R10-8408-22

ecology and environment, inc.
SEATTLE, WASHINGTON

TABLE 4.1
WASTE QUANTITIES DISPOSED OF
AT PSL BY RRC

Location(5)	Description(7) (Size*/Lining)	Waste Type(2.8)	Estimated Quantity (2,5,8)	Units
Site A	100'x100' bottom unlined top lined	acids	544	drums
		aromatic tars	160-248	drums
		carcinogenics (unspecified)	9	drums
		caustics	8,774	drums
		cedimum	11	drums
		metal finishing	244-304	drums
		oil sludge	433	drums
		paint	10,258-24,200	drums
		pesticides	425	drums
		pesticide containers (empty)	791-863	drums
Site B	50'x50' bottom unlined top lined	2,4-D manufacturing	2,011-5,080	drums
Site C	75'x75' bottom unlined top lined	acids	7,000	gallons
		acid metal cleaning	2,301,560	pounds
		lime phenol	684,967	gallons
		metal cleaning	185,162	gallons
		metal finishing	17,000-35,724	gallons
		metal finishing	1,460,602-1,949,652	pounds
Site D	75'x75' bottom unlined top lined	aromatic tar	499,270	pounds
		cutting oil	76,350-84,300	gallons
		fertilizer manufacturing	228,288	pounds
		oily sludge	6,000-66,340	gallons
		paint	72,475-497,418	pounds
		paint	66,516-95,711	gallons
		plywood resin	1,393,380-2,215,440	pounds
		solvents	12,648	gallons
Site E	unknown bottom and top lined	barium with mercury	10,500-11,582	tons
Unknown	unknown	acid sludges	1,000	gallons
		acid wash solution	312,350	pounds
		benzoic acid and tar	176,000	pounds
		chemistry lab reagents	1	drum
		chrome rinse water	700,901	pounds
		DCP tar	8,790	gallons
		etching solution	1,914	barrels
		lime sludge	80-160	drums
		MCPA bleed	104,318-327,000	gallons
		MCPA tar	2,965-3,037	drums
			939	drums
			2,813	barrels
			680	pails
		metal casing wastes	3,300-5,760	drums
		misc. lab chemicals	29	sm. containers
		NH_4+ and NaOH chemical solutions	17,238	gallons
		oily sludge	166,680	pounds
		other miscellaneous	435	drums
		pesticide containers	1,045	each
		resin manufacturing	392,553	gallons
		solid caustic soda	44,550	pounds
		wood treatment/preservative	294,662	gallons
			238	drums

*The depths of the burial sites are unknown. All linings are 4 mil polyethylene and all sites are covered with soil.

The WDOE prepared a report which was published in December 1973. In their report, WDOE stated that the site was in an excellent location for ground disposal of industrial solid wastes, if the proper safeguards are observed. Further, that the arid climate prevents the leaching of solid wastes disposed into the ground and is conducive to on-site concentration and desiccation of liquid wastes. They also concluded that since the water table is relatively shallow, it is not acceptable to dispose of liquid wastes directly to the ground in unlined pits or trenches. The state decided that the probability of air pollution at the site was considered to be low. Figure 5.1 explains the site structure during this WDOE investigation. The report concluded the following recommendations:

- o all materials received for disposal at the site shall be recorded as to the type, chemical composition and quantity:
- o abandoned disposal sites must be permanently monumented:
- o all trenches intended for the disposal of hazardous wastes should be lined.

5.2 J-U-B Engineers Reports

J-U-B Engineers have been contracted by the operator of the PSL as consultants to plan and implement the groundwater quality program at the PSL site. The engineering firm has completed 2 major reports on the PSL.

J-U-B Engineers first report (June 1981) responded to several issues which the WDOE raised in a letter to the PSL on 18 February 1981. The report included the following (9):

- o a discussion of the percolation of septic wastes and their impact on hazardous wastes which were disposed of on-site:
- o documentation procedures of septic wastes received at PSL:
- o direction and velocity of groundwater flow:
- o current groundwater monitoring program:
- o estimated the transmissivity and permeability of the water table aquifer at the site.

The authors concluded that:

- o the industrial waste disposal sites are not being saturated by lateral movement of waste waters from the sewage lagoons:
- o the groundwater flow direction and quality have been determined near the landfill site but an additional well is needed at the southern boundary to verify flow:
- o a groundwater monitoring program has been established to determine current and future impacts of site operations.

In July 1983, J-U-B Engineers published a second report on the PSL which was a summary of past quarterly groundwater sampling. This report included:

- a summary of the construction of six groundwater monitoring wells completed in January 1982 (Figure 5.2);
- tentatively identified the direction of groundwater flow;
- summarized the analytical results of quarterly groundwater samples collected by J-U-B Engineers from January 1982 to March 1983:
- compared the groundwater quality to health effect limits.

J-U-B Engineering concluded the following:

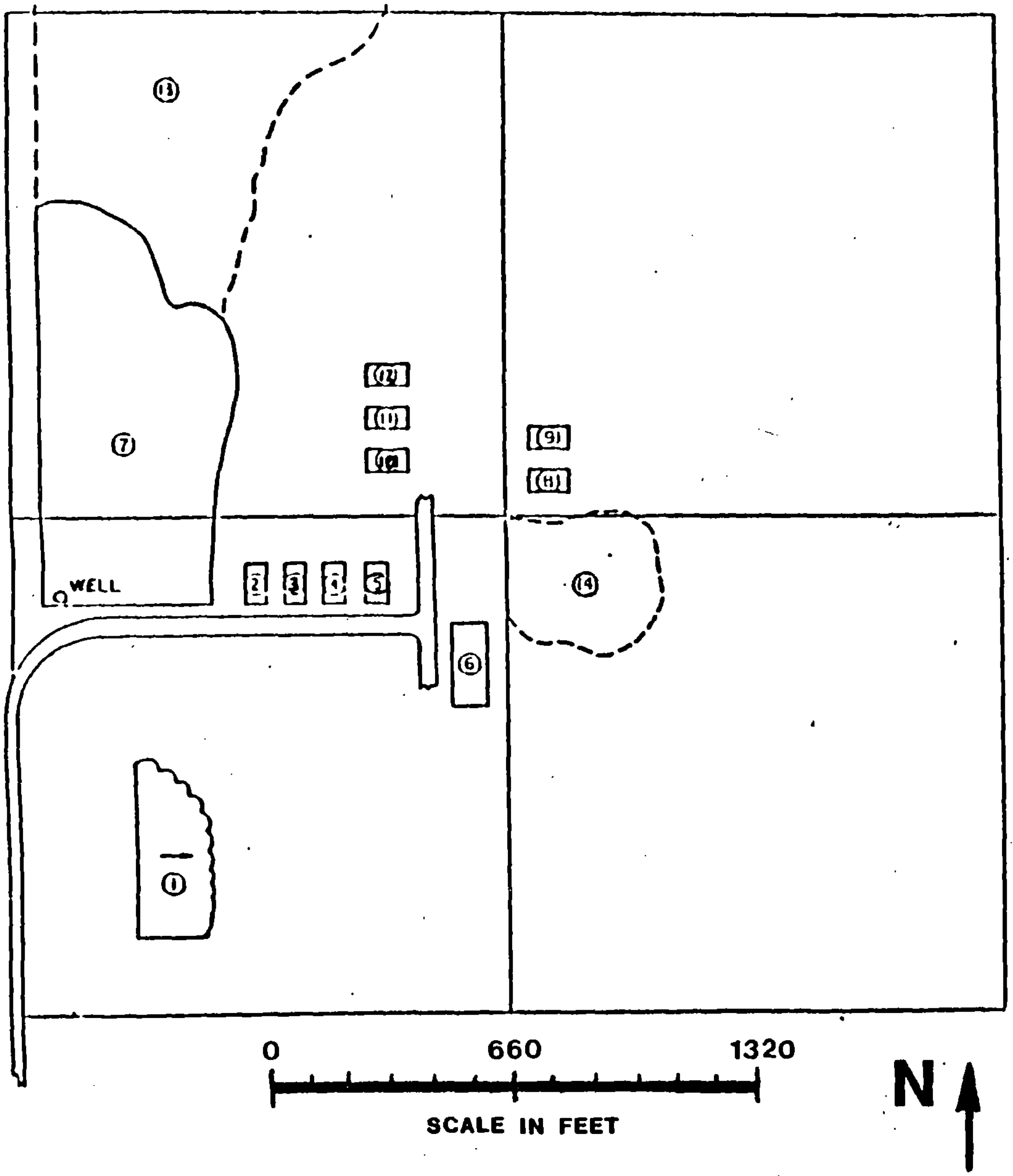
- existing monitoring wells are located in such a manner that they will detect any leachate migration from the industrial and solid waste areas and the sewage evaporation lagoon;
- the wells are constructed to obtain water from the upper 20 feet of the water table aquifer where contaminants from the landfill would be most readily observed:
- sampling results for health-effect related parameters show concentration to be largely below detection limits and in all cases below the EPA allowable contaminant levels.

There are a number of discrepancies between the disposal sub-site descriptions in Figure 5.1 and 5.2. The exact size and location of each disposal sub-site is in question as is the identification numbering system. Table 5.1 is a cross reference of both parties numbering systems.

TABLE 5.1
CROSS REFERENCE OF J-U-B AND WDOE
DISPOSAL SUB-SITE NUMBERING SYSTEM (10)

J-U-8	WDOE	Description
A	1	Disposal of containerized wastes
B	6	Disposal of containerized herbicide wastes
C and D	2 to 5	Evaporation ponds
E	8 and 9	Unlined trenches for disposal of chloralkali sludges
F_1	NI	Solid Waste fill area
F_2	7	Solid Waste fill area
NI	10 to 14	Never used

NI - Not Identified



Location (See Map)	Description	Amount
1	For disposal of containerized wastes such as:	
	Paint wastes (sludge, pigments, resins, colors)	10,258 drums
	Empty pesticide containers	800 drums
	Wood treatment wastes	1,100 drums
	Etching solutions	160 drums
	Metal casting wastes	3,300 drums
	All wastes are in containers and buried under 5 feet of soil. There have been no known liquid discharges from this location.	
2	An unlined pond for evaporation of water from simple wastes such as:	
	Lime sludge and ammonia water	327,000 gal.
3	A lined pond for evaporation of water from: chrome plating wastes	8,790 gal.
4	A lined pond for evaporation of water from: miscellaneous liquids - not yet used to any extent	
5	A roughed out pond for later use. Being used as temporary storage for chlor-alkali sludge pending preparation of trenches 10, 11, and 12.	
6	For disposal of containerized herbicide wastes such as:	
	2,4-D tar	2,011 drums
	MCPA Bleed	1,017 drums
	other miscellaneous	435 drums
	The drums are covered with 5 feet of soil. There have been no known discharges from this location.	
7	The currently active landfill operation.	
8, 9	Unlined trenches for temporary disposal of chlor-alkali sludge. The sludge will be moved to lined trenches 10, 11, and 12.	
10, 11, 12	Proposed site for disposal of chlor-alkali sludges. The lined trenches will be constructed as outlined in Figure 2.	
13, 14,	Space for future landfill operations.	

FIGURE 5.1

AREAS OF DISPOSAL OCTOBER 1973 (2)

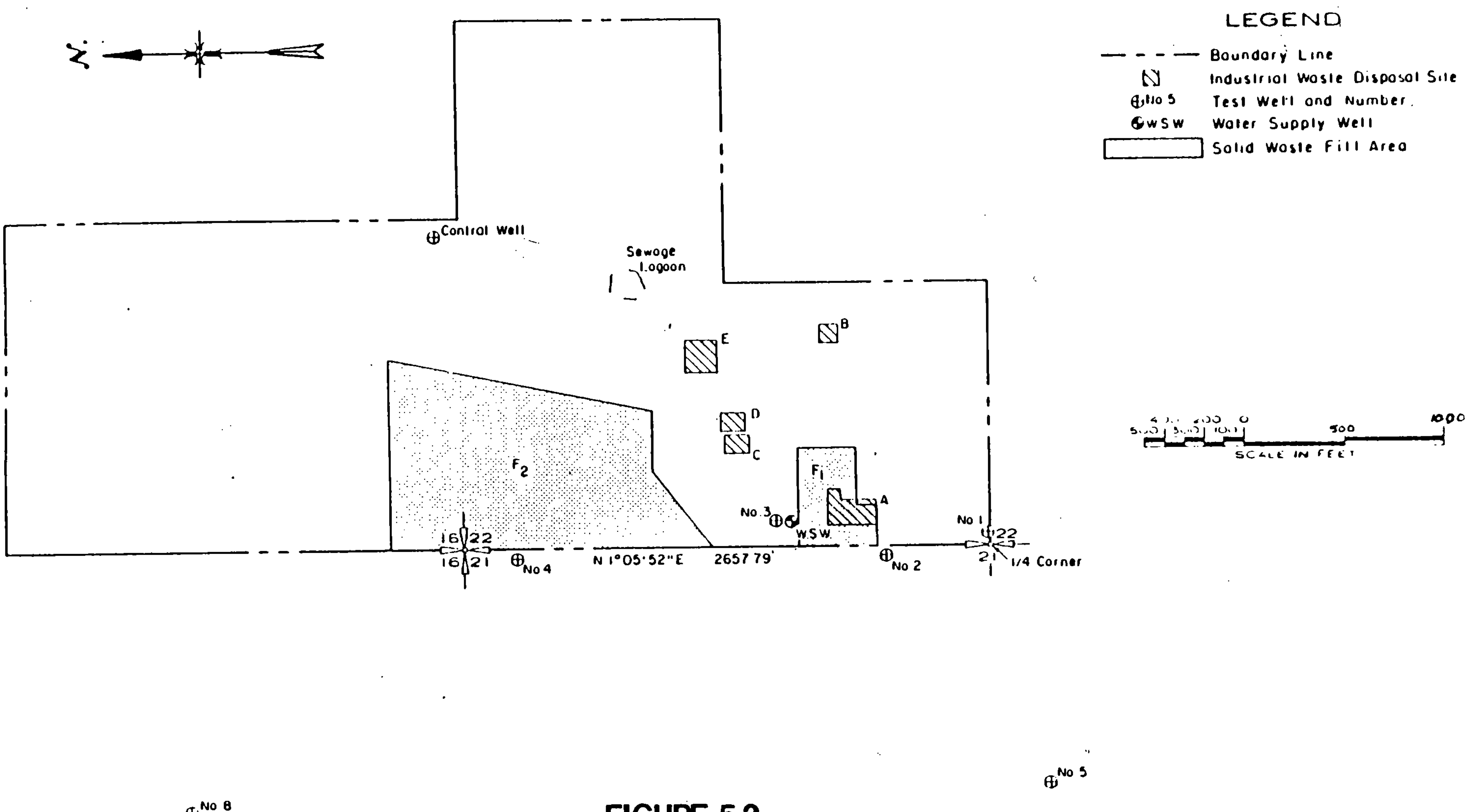


FIGURE 5.2

PASCO SANITARY LANDFILL

WASTE DISPOSAL AND WELL LOCATIONS(5)

5.3 Preliminary Assessments (PA) and Site Inspections (SI)

Table 5.2 summarizes the PA's and SI's which have been conducted to date.

TABLE 5.2
SUMMARY OF PA AND SI ACTIVITIES (11)

Activity	Date	Responsible Agency
Identification of Potential Problem	07-79	EPA
SI	07-79	EPA
PA	08-79	EPA
SI	04-80	WDOE
PA	04-84	JRB Associates
Hazard Ranking System Score	04-84	Unknown
SI	09-84	E&E

6.0 Observations

On September 12, 1984, a site inspection was conducted at PSL. The site inspection began at 0800. Mike Gallagher (WDOE), Larry Deitrich (PSL), John Zillich (J-U-B Engineering), Peter Evers (E&E), and Richard Brooks (E&E), were present. The inspection included a discussion about background information, a site tour, and sample collection. It was noted during the site tour that no drums or hazardous wastes were visible at the surface and no color stains or leachate seeps were observed.

Three groundwater samples were collected during the inspection. The results of the analysis of these samples are contained in Appendix A. This data indicates that there is no organic contamination from the site reaching the groundwater which was sampled. The inorganic analysis revealed higher levels of heavy metals in the well which has been identified as the control well (Table 6.1).

TABLE 6.1
COMPARISON OF SELECTED HEAVY METALS (ug/l)

Metal	Upgradient Well	Well No. 3	EPA Recommended Level*
Aluminum	102,000	41,500	---
Arsenic**	39	28	50
Barium	1,531	785	1,000
Beryllium	7	5 U	1.17
Cadmium	1.9	1 U	10
Chromium	106	46	50
Cobalt	170	5 U	---
Copper**	280	120	1,000
Iron	199,900	97,450	---
Lead	160	70	50
Manganese	4,380	1,694	---
Nickel**	162	63	13.4
Vanadium	302	200 U	---
Zinc	514	207	5,000

*Compiled from a) National Interim Primary Drinking Water Regulations, EPA Office of Water Supply, 1979.
b) Water Quality Criteria Documents, Federal Register, Vol. 45, No. 231, November 1980.

U - Under detection limit (listed next to value).

** - Refer to cover memorandum to the inorganic data for discussion of these values.

This data suggests that:

- o the actual direction of groundwater flow is possibly not in the direction which has been tentatively identified;
- o hazardous wastes may have been disposed of upgradient of the control well which have not been identified in past reports and may have migrated to this well.

Because of this uncertainty, it can not be determined if the inorganic contamination is originating on or off-site.

7.0 Discussion

One factor that may efect the quality of analytical data of the groundwater samples collected from the PSL is the monitoring well design (Figure 7.1). The wells are screened at 2 intervals separated by approximately 15 feet. The water samples are obtained by placing a

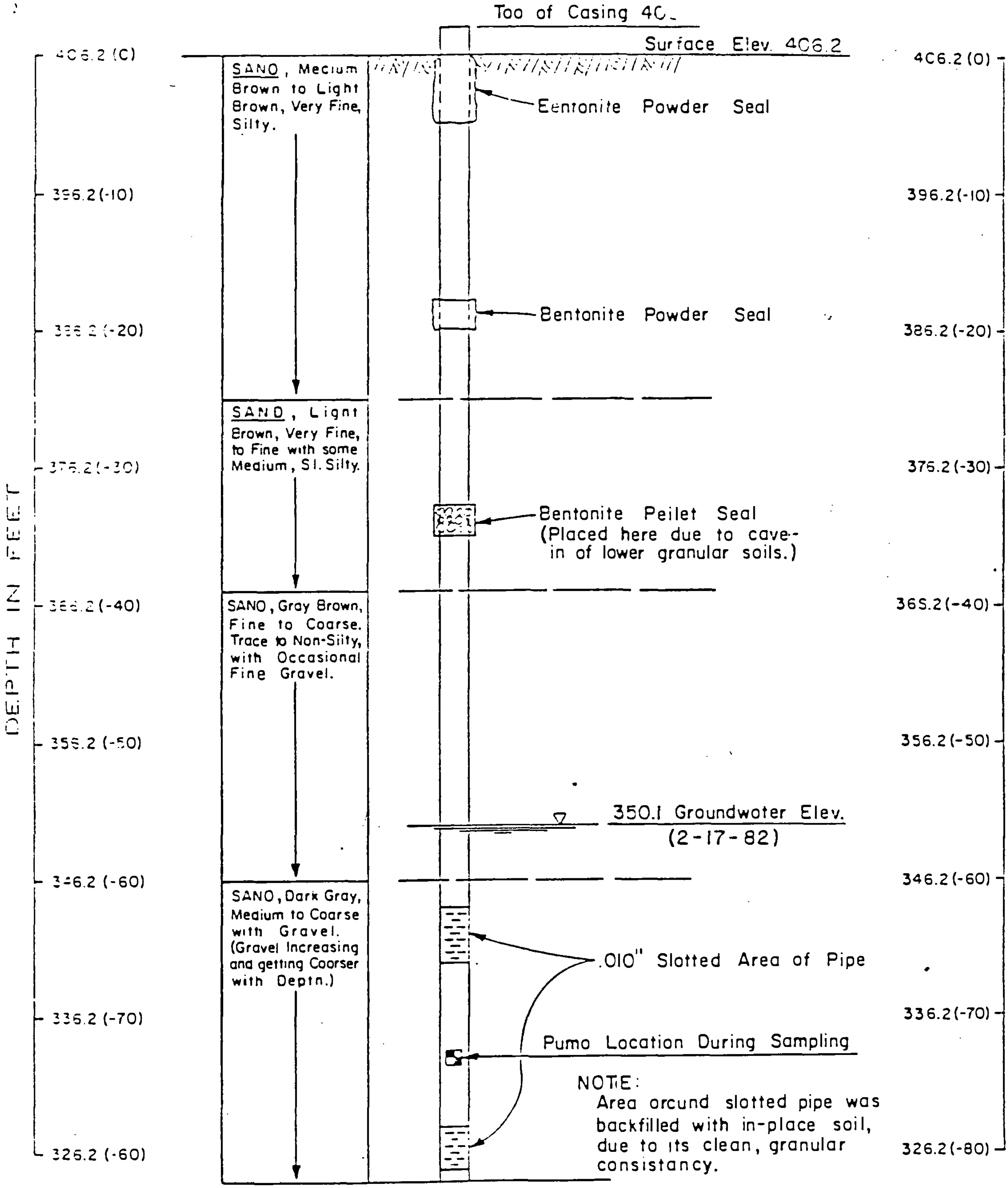


FIGURE 7.1

WELL NO. 2 (5)

INSTALLED 1-14-82

pump halfway between these screens. Utilizing this design there is no assurance that:

- o equal amounts of water are extracted from each screened interval;
- o the depth from which the sample is being collected is accurately known;
- o the concentrations of contaminates are representative of the actual groundwater conditions due to the potential unequal volumes of water are extracted from each screened interval.

It is difficult to compare previous groundwater analytical data available and establish possible trends of contamination at the PSL. The samples collected by J-U-B Engineers were analyzed for different parameters than those collected by E&E. The analytical data which is contained in the J-U-B report is incomplete in that the units of measurement are not given. The exception to this are the metals data which are contained in Table 7.1, these metals were analyzed for by both firms.

TABLE 7.1
COMPARISON OF PREVIOUS ANALYTICAL DATA METAL (ug/l)

Well Number	Date Sampled	Arsenic	Barium	Cadmium	Chromium	Lead
Upgradient	17-18/02/84	10 U	100 U	1 U	5 U	5 U
	12/09/84	39**	1,631	1.9	106	160
3	17-18/02/84	10 U	100 U	1 U	5 U	5 U
	12/09/84	28**	785	1 U	46	70

U - Under detection limit (listed next to value)

** - To cover memorandum to the inorganic data for discussion of these values

It can be interpreted from the data contained in Table 7.1 that the levels of metal contaminaton have increased between samplings. Records of materials disposal of on-site indicate that at least 3 of the 5 metals described in Table 7.1 were disposed at the PSL. These include: Barium, Chromium, and Lead.

Evaluation and Recommendation - Resource Recovery Corporation

Based on existing data and documentation, further investigation is needed to assess the potential hazard associated with this site. Because of the toxic nature of many of the compounds (e.g. 2,4-D, MCPA) which have been disposed of at PSL and the observed increase of contaminants in the on-site and control wells, the following recommendations should be considered:

1) Further investigation should be carried out to determine the validity of the site's disposal records. There are a number of variations relating to the quantities and types of wastes which have been disposed of at the PSL.

2) Resample all of the wells on-site and analyze for the compounds identified on the EPA Priority Pollutant List including dioxins.

3) Monitor the wells and determine whether or not seasonal fluctuations (due to local irrigation demands) of groundwater flow exist which could transport contaminants toward the on-site control well.

4) Collect subsurface soils samples adjacent to all waste disposal areas to determine whether or not wastes are leaching from these areas.

5) Contact the chemical toilet firm which is disposing waste water in the sewage lagoon and determine if any chemicals which they are using are hazardous.

These recommendations should be pursued on a ~~medium~~ HIGH priority basis.

6) GROUNDWATER FLOW DIRECTION SHOULD BE FURTHER INVESTIGATED.

7) Determine if wastes disposed of "upgradient" of control well.

8) Determine if inorganic contamination is originating from on or off-site.

REFERENCES

1. Doug Hansen, Director, EPA Air and Hazardous Materials Division; Letter to the EPA files; August 2, 1979.

2. Resource Recovery Corporation Industrial Disposal Site Evaluation, Report by Washington Oeoartment of Ecology December 1973 contained in the Region X EPA ERRIS site files.

3. HRS User's Manual (draft) 10 June 1982, document developed for U.S. Environmental Protection Agency by the Mitre Corporation (pg. 15).

4. Basalt Waste Isolation Project, Annual Report - Fiscal Year 1980, RHO-BWI-80-100, document prepared for U.S. Department of Energy under contract OE-AC06-77RL01030 by Rockwell International.

5. Summary Report - Groundwater Quality in the Vicinity of the Pasco Landfill, by J-U-B Engineers, Kennewick, Washington, July 1983. Contained in the Region X U.S. EPA ERRIS site files.

6. The Climatic Atlas of the United States, U.S. Department of Commerce, June 1958 (reprinted by NOAA, 1979).

7. Personal communication with Larry Dietrich during site inspection.

8. EPA Files on RRC. Monthly wastes accepted, reports from RRC to WDOE, May 1973 to December 1974.

9. Evaluation of the Pasco Sanitary Landfill Waste Disposal Practices, J-U-B Engineers, Kenewick, Washington, June 1981.

10. Telephone Conversation. Mike Gallagher, Environmentalist II, WDOE, Chris Nadler, FIT Investigator, E&E, Seattle, 11 December 1984, 135D.

11. EPA files.

APPENDIX A

QUALITY ASSURANCE MEMOS AND ANALYTICAL DATA SHEETS
RESOURCE RECOVERY CORPORATION, PASCO, WASHINGTON
CASE NO.: 3206
SITE INSPECTION - 9/12/84
ECOLOGY AND ENVIRONMENT, INC., SEATTLE

Resource Recovery Corp.
TDD R10-8410-06

ecology and environment, inc.

108 SOUTH WASHINGTON, SUITE 302, SEATTLE, WASHINGTON 98104, TEL. 206-624-9537

International Specialists in the Environmental Sciences

M E M O R A N D U M

DATE: November 7, 1984

TO: John Osborn, FIT RPO
EPA, Region X

THRU: Dave Buecker, FIT RPM
E&E, Seattle

FROM: Jim Farr, Senior Chemist
E&E, Seattle

SUBJ: QA of Sample Results for Case 3206

I have finished my review of data for Case 3206. Chemtech analyzed three water samples for inorganics. I believe the data to be acceptable except for the following comment:

Duplicate data for arsenic, copper, and nickel gave high RPD's. I have starred all results on the data sheets that are associated with the duplicate. The starred values (*) suggest a larger imprecision for measuring that particular element. The imprecision would suggest error of ±44% for arsenic, ±46% for copper, and ±24% for nickel.

Otherwise all results are as reported. Please call me if you have questions.

CC: Peter Evers
JF:pc
attachment

APPENDIX A

recycled paper

(W)

EPA Sample No.
MJ 9043

Date 10-24-84

U.S. EPA-Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

INORGANIC ANALYSIS DATA SHEET

LAB NAME CHEMTECH

CASE NO. 3206

LAB SAMPLE ID. NO. 62-322-01

QC REPORT NO. 322

Elements Identified and Measured

Matrix Low Water

ug/L or mg/kg (Circle One)

1. Aluminum	102000	13. Magnesium	NR
2. Antimony	~~<20~~ 20 u	14. Manganese	4380
3. Arsenic	39*	15. Mercury	~~<0.2~~ 0.2u
4. Barium	1631	16. Nickel	162*
5. Beryllium	7	17. Potassium	NR
6. Cadmium	~~0.1~~ 1.9	18. Selenium	2
7. Calcium	NR	19. Silver	~~<10~~ 10u
8. Chromium	106	20. Sodium	NR
9. Cobalt	170	21. Thallium	~~<10~~ 10u
10. Copper	280*	22. Tin	~~<20~~ 20u
11. Iron	199900	23. Vanadium	302
12. Lead	160	24. Zinc	514
Cyanide	~~<10~~ 10 u	Percent Solids	NR

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

95/16 [illegible]

Comments:

Lab Manager E. Hecht

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MJ 9044

Date 10-24-84

INORGANIC ANALYSIS DATA SHEET

LAB NAME CHEMTECH

CASE NO. 3206

LAB SAMPLE ID. NO. ~~62-322-02~~

QC REPORT NO. 322

Elements Identified and Measured

Matrix Low Water

ug/L or mg/kg (Circle One)

1.	Aluminum	203	13.	Magnesium	NR
2.	Antimony	<20 20u	14.	Manganese	<10 10u
3.	Arsenic	<10 10u	15.	Mercury	<0.2 0.2u
4.	Barium	<100 100u	16.	Nickel	< 40 40u
5.	Beryllium	<5 5u	17.	Potassium	NR
6.	Cadmium	<1 1u	18.	Selenium	<2 2u
7.	Calcium	NR	19.	Silver	<10 10u
8.	Chromium	<10 10u	20.	Sodium	NR
9.	Cobalt	<50 50u	21.	Thallium	<10 10u
10.	Copper	<50 50u	22.	Tin	<20 20u
11.	Iron	163	23.	Vanadium	<200 200u
12.	Lead	<5 5u	24.	Zinc	<10 10u
	Cyanide	<10 10u		Percent Solids	NR

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager E. Heller

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MJ 9045

Date 10-24-84

INORGANIC ANALYSIS DATA SHEET

LAB NAME CHEMTECH CASE NO. 3206

LAB SAMPLE ID. NO. 62-333-03 QC REPORT NO. 322

Elements Identified and Measured

Matrix Lw Water

ug/L or mg/kg (Circle One)

1.	Aluminum	41500	13.	Magnesium	NR
2.	Antimony	~~<20~~ 20u	14.	Manganese	1694
3.	Arsenic	28*	15.	Mercury	~~<0.2~~ 0.2u
4.	Barium	785	16.	Nickel	63*
5.	Beryllium	~~<5~~ 5u	17.	Potassium	NR
6.	Cadmium	~~<1~~ 1u	18.	Selenium	2
7.	Calcium	NR	19.	Silver	~~<10~~ 10u
8.	Chromium	42	20.	Sodium	NR
9.	Cobalt	~~<50~~ 50u	21.	Thallium	~~<10~~ 10u
10.	Copper	120*	22.	Tin	~~<20~~ 20u
11.	Iron	97450	23.	Vanadium	~~<200~~ 200u
12.	Lead	70	24.	Zinc	207
	Cyanide	~~<10~~ 10u		Percent Solids	NR

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager E. Hecht

ecology and environment, inc.
108 SOUTH WASHINGTON, SUITE 302, SEATTLE, WASHINGTON 98104, TEL. 206-624-9537
International Specialists in the Environmental Sciences

MEMORANDUM

DATE: November 27, 1984

TO: John Osborn, FIT RPO, USEPA Region X

FROM: Andy Hafferty, Chemist, E&E, Seattle
J. Farr, Sr. Chemist, E&E, Seattle

THRU: D. Buecker, FIT RPM, E&E, Seattle

SUBJ: QA of Data; Case 3206 - Resource Recovery Corp.

REF: TDD R10-8410-06

The review of three water samples sent to PEDCO Environmental, Inc., Cincinnati, OH, has been completed. These samples were given a full organics analysis.

Sample numbers are J2271, J4548, and J4549.

Volatile surrogate recoveries were all within QC limits.

Half of the pesticide surrogate recoveries were outside QC limits.

Sample	Dibutyl Chlorendate (67-114)
J2271	69%
J4548	22% out
J4549 (field blank)	120% out
Lab Blank	95%

There is no explanation for the out of control recovery reported in the field blank.

Eleven out of 36 surrogate recoveries of the Semi-volatile (BNA) fraction were out of control. The samples were not re-extracted and re-analyzed as required by the CLP. The lab blank showed three out of six recoveries outside of QC limits. The field blank, J4549, had two out of six recoveries out of control. Again, there is NO explanation for these unacceptable blank results.

All pesticide matrix spike and matrix spike duplicates (MS/MSD) were within recovery (REC) and reproducibility (RPO) quality control limits.

Two out of 10 volatile MS/MSD recoveries were outside QC limits.

Seven out of 14 base/neutral MS/MSD recoveries were outside QC limits and all seven out of seven base/neutral MS/MSD RPD's were OUT of control.

Eight cut of ten acid MS/MSD recoveries were outside QC limits and, including one 0 value, four out of five acid MS/MSD RPD's were OUT of control.

Methylene chloride and acetone in the volatiles lab blank and Bis (2-ethylhexyl) phthalate in the BNA lab blank were found at concentrations above the contract specified maximum.

Copies of the PEDCO lab summary sheets have been included in this report.

The laboratory was called on November 8, 1984 by Dr. James Farr (a copy of the telephone log has been included in this report) regarding missing spectra and the failure of the laboratory to carry out contract required re-extraction and re-analysis. The missing spectra have been received and added to the data package. The laboratory's response regarding the failure to re-examine the BNA fraction was that since no compounds were detected, repetitive analyses were unnecessary. The CLP clearly states that the laboratory must repeat the analyses without regard to the presence or lack of quantifiable analytes.

This is the second case of samples received from PEDCO with serious unexplained quality control anomalies. Please refer to the E&E, quality assurance memorandum dated November 2, 1984, regarding QA of Data from the Tulalip Indian Reservation, Case 3270.

The following list summarizes tne recommendations regarding this data and the performance of the laboratory.

1. The Volatile and Pesticide data are acceptable.

2. The Semi-volatile data is unacceptable. If this data must be used, extreme caution should be exercised in drawing any conclusions based on these results.

3. The SMO should be notified regarding the continuing quality control problems at PEDCO Environmental, Inc.

4. PEDCO should be required to perform the work as specified in the CLP on all future work.

AH:pc
Attachments
CC: Bill Ritthaler
Arnold Gahler

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USEPA-SAMPLE MANAGEMENT OFFICE
PO BOX 818 ALEXANDRIA,VA 22313

SAMPLE NO.
J2271

ORGANICS ANALYSIS DATA SHEET

LABORATORY NAME ____________ PEDCO ENV.
LAB SAMPLE ID NO ____________ DT147
SAMPLE MATRIX ____________ WATER
DATA RELEASE AUTHORIZED ____________

CASE NO: ____________ 3206
QC REPORT NO. ____________
CONTRACT NO. ____________ 68-01-6779
DATE SAMPLE RECEIVED ____________ 9/13/86

00029

VOLATILES

CONCENTRATION ____________ LOW
DATE PREPARED ____________ 9/13/84
DATE ANALYZED ____________ 9/13/84
PERCENT MOISTURE ____________ N/A
CONCENTRATION/DIL. FACTOR ------ 0.2

PP#	CAS#		UG/L
(2V)	107-02-0	ACROLEIN	100U
(3V)	107-13-1	ACRYLONITRILE	100U
(4V)	71-43-2	BENZENE	5U
(6V)	56-23-2	CARBON TETRACHLORIDE	5U
(7V)	108-90-7	CLOROBENZENE	5U
(10V)	107-06-2	1,2-DICHLOROETHANE	5U
(11V)	71-55-6	1,1,1-TRICHLOROETHANE	5U
(13V)	75-34-3	1,1-DICHLOROETHANE	5U
(14V)	79-00-5	1,1,2-TRICHLOROETHANE	5U
(15V)	79-34-5	1,1,2,2-TETRACHLOROETHANE	10U
(16V)	75-00-3	CHLOROETHANE	10U
(19V)	110-75-8	2-CHLOROETHYLVINYLETHER	10U
(23V)	67-66-3	CHLOROFORM	5U
(29V)	75-35-4	1,1-DICHLOROETHENE	5U
(30V)	156-60-5	TRANS-1,2-DICHLOROETHENE	5U
(32V)	78-87-5	1,2-DICHLOROPROPANE	10U
(33V)	10061-02-6	TRANS-1,3-DICHLOROPROPENE	5U
	10061-01-05	CIS-1,3-DICHLOROPROPENE	5U
(38V)	100-41-4	ETHYLBENZENE	5U
(44V)	75-09-2	METHYLENE CHLORIDE	5U
(45V)	74-87-3	CHLOROMETHANE	10U
(46V)	74-83-9	BROMOMETHANE	10U
(47V)	75-25-2	BROMOFORM	10U
(48V)	75-27-4	BROMODICHLOROMETHANE	5U
(49V)	75-69-4	FLUOROTRICHLOROMETHANE	5U
(50V)	75-71-8	DICHLORODIFLUOROMETHANE	NA
(51V)	124-48-1	CHLORODIBROMOMETHANE	5U
(85V)	127-18-4	TETRACHLOROETHENE	5U
(86V)	108-88-3	TOLUENE	5U
(87V)	79-01-6	TRICHLOROETHENE	5U
(88V)	75-01-4	VINYL CHLORIDE	10U
	67-64-1	ACETONE	5U
	78-93-3	2-BUTANONE	5U
	75-15-0	CARBON DISULFIDE	1U
	519-78-6	2-HEXANONE	5U
	108-10-1	4-METHYL-2-PENTANONE	5U
	100-42-5	STYRENE	5U
	108-05-4	VINYL ACETATE	5U
	1330-20-7	TOTAL XYLENES	5U

PESTICIDES

CONCENTRATION ____________ LOW
DATE EXTRACTED ____________ 9/18/86
DATE ANALYZED ____________ 10/4/84
PERCENT MOISTURE ____________ N/A
CONCENTRATION/DIL. FACTOR ------ 10

PP#	CAS#		UG/L
(89P)	309-00-2	ALDRIN	.005U
(90P)	60-57-1	DIELDRIN	.005J
(91P)	57-74-9	CHLORDANE	.05U
(92P)	50-29-3	4,4'DDT	.01U
(93P)	72-55-9	4,4'DDE	.005U
(94P)	72-54-8	4,4'DDD	.1U
(95P)	115-29-7	ALPHA-ENDOSULFAN	.005U
(96P)	115-29-7	BETA-ENDOSULFAN	.005U
(97P)	1031-07-8	ENDOSULFAN SULFATE	.01U
(98P)	72-20-8	ENDRIN	.005U
(99P)	7421-93-4	ENDRIN ALDEHYDE	.01U
(100P)	76-44-8	HEPTACHLOR	.005U
(101P)	1024-57-3	HEPTACHLOR EPOXIDE	.005U
(102P)	319-84-6	ALPHA-BHC	.005U
(103P)	319-85-7	BETA-BHC	.005U
(104P)	319-86-8	DELTA-BHC	.005U
(105P)	58-89-9	GAMMA-BHC (LINDANE)	.005U
106P	53469-21-9	PCB-1242	.05U
107P	11097-69-1	PCB-1254	.1U
108P	11104-28-2	PCB-1221	.1U
109P	11141-16-5	PCB-1232	.05U
110P	12672-29-6	PCB-1248	.1U
111P	11096-82-5	PCB-1260	.1U
112P	12674-11-2	PCB-1016	.2U
113P	8001-35-2	TOXAPHENE	.05U

USEPA-SAMPLE MANAGEMENT OFFICE
PO BOX 818 ALEXANDRIA,VA 22313

0000028

SAMPLE NO.
J2271

ORGANICS ANALYSIS DATA SHEET

LABORATORY NAME__________PEDCO ENV.
LAB SAMPLE ID NO__________DT147
SAMPLE MATRIX__________WATER
DATA RELEASE AUTHORIZED______ KC

CASE NO:__________3206
QC REPORT NO.__________
CONTRACT NO.__________68-01-6779
DATE SAMPLE RECEIVED__________9/13/84

SEMIVOLATILE COMPOUNDS

CONCENTRATION__________LOW
DATE EXTRACTED__________9/13/84
DATE ANALYZED__________9/26/84
PER CENT MOISTURE__________N/A
CONCENTRATION/DIL. FACTOR----500

PP#	CAS#		UG/L	
(21A)	88-06-2	2,4,6-TRICHLOROPHENOL	10	J
(22A)	59-50-7	P-CHLORO-M-CRESOL	10	
(24A)	95-57-8	2-CHLOROPHENOL	10	
(31A)	120-33-2	2,4-DICHLOROPHENOL	10	
(34A)	105-67-9	2,6-DIMETHYLPHENOL	10	
(57A)	88-75-5	2-NITROPHENOL	20	
(58A)	100-02-7	4-NITROPHENOL	50	
(59A)	51-23-5	2,4-DINITROPHENOL	50	
(60A)	534-52-1	4,6-DINITRO-O-CRESOL	20	
(64A)	87-36-5	PENTACHLOROPHENOL	10	
(65A)	108-95-2	PHENOL	10	
	65-85-0	BENZOIC ACID	100	
	95-48-7	2-METHYLPHENOL	5	
	108-39-4	4-METHYLPHENOL	5	
	95-95-4	2,4,5-TRICHLOROPHENOL	100	
(1B)	83-32-9	ACENAPTHENE	10	
(5B)	92-87-5	BENZIDINE	40	
(8B)	120-82-1	1,2,4-TRICHLOROBENZENE	10	
(9B)	118-74-1	HEXACHLOROBENZENE	10	
(12B)	67-72-1	HEXACHLOROETHANE	10	
(18B)	111-44-4	BIS(2-CHLOROETHYL)ETHER	10	
(20B)	91-58-7	2-CHLORONAPTHALENE	10	
(25B)	95-50-1	1,2-DICHLOROBENZENE	10	
(26B)	541-73-1	1,3-DICHLOROBENZENE	10	
(27B)	106-46-7	1,4-DICHLOROBENZENE	10	
(28B)	91-94-1	3,3'-DICHLOROBENZIDINE	20	
(35B)	121-14-2	2,4-DINITROTOLUENE	20	
(36B)	606-20-2	2,6-DINITROTOLUENE	20	
(37B)	122-66-7	1,2-DIPHENYLHYDRAZINE	20	
(39B)	206-44-0	FLUORANTHENE	10	
(40B)	7005-72-3	4-CHLOROPHENYLPHENYLETHER	10	
(41B)	101-55-3	4-BROMPHENYLPHENYLETHER	10	
(42B)	39633-32-9	BIS(2-CHLOROISOPROPYL)ETHER	20	
(43B)	111-91-1	BIS(2-CHLORETHOXY)METHANE	20	J

PP#	CAS#		UG/L	
(52B)	87-68-3	HEXACHLOROBUTADIENE	10	J
(53B)	77-47-4	HEXACHLOROCYCLOPENTADIENE	10	
(54B)	78-59-1	ISOPHORONE	10	
(55B)	91-20-3	NAPTHALENE	10	
(56B)	98-95-3	NITROBENZENE	10	
(62B)	86-30-6	N-NITROSODIPHENYLAMINE	10	
(63B)	621-64-7	N-NITROSODIPROPYLAMINE	10	
(66B)	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	530	
(67B)	85-68-7	BENZYLBUTYL PHTHALATE	3	
(68B)	84-74-2	DI-N-BUTYL PHTHALATE	17.4	
(69B)	117-84-0	DI-N-OCTYL PHTHALATE	10	
(70B)	84-66-2	DIETHYL PHTHALATE	10	
(71B)	131-11-3	DIMETHYL PHTHALATE	10	
(72B)	56-55-3	BENZO(A)ANTHRACENE	10	
(73B)	50-32-8	BENZO(A)PYRENE	20	
(74B)	205-99-2	BENZO(B)FLUORANTHENE AND/	20	
(75B)	207-08-9	BENZO(K)FLUORANTHENE OR	20	
(76B)	218-01-9	CHRYSENE	20	
(77B)	208-96-8	ACENAPTHYLENE	10	
(78B)	120-12-7	ANTHRACENE	10	
(79B)	191-24-2	BENZO(GHI)PERYLENE	20	
(80B)	86-73-7	FLUORENE	10	
(81B)	85-01-8	PHENANTHRENE	10	
(82B)	53-70-3	DIBENZO(AH)ANTHRACENE	20	
(83B)	193-39-5	INDENO(123-CD)PYRENE	20	
(84B)	129-00-0	PYRENE	10	
	62-53-3	ANILINE	5	
	100-51-6	BENZYL ALCOHOL	20	
	106-47-8	4-CHLOROANILINE	50	
	132-64-9	DIBENZOFURAN	10	
	91-57-6	2-METHYLNAPTHALENE	20	
	88-74-4	2-NITROANILINE	100	
	99-09-2	3-NITROANILINE	100	
	100-01-6	4-NITROANILINE	100	J

USEPA-SAMPLE MANAGEMENT OFFICE
PO BOX 818 ALEXANDRIA,VA 22313

0000056

SAMPLE NO.
J6543

ORGANICS ANALYSIS DATA SHEET

LABORATORY NAME ____ PEDCO ENV.
LAB SAMPLE ID NO ____ DT148
SAMPLE MATRIX ____ WATER
DATA RELEASE AUTHORIZED ____

CASE NO: ____ 3204
QC REPORT NO. ____
CONTRACT NO. ____ 68-01-6779
DATE SAMPLE RECEIVED ____ 9/13/84

VOLATILES

CONCENTRATION ____ LOW
DATE PREPARED ____ 9/13/84
DATE ANALYZED ____ 9/13/84
PER CENT MOISTURE ____ N/A
CONCENTRATION/DIL. FACTOR ---- 0.2

PP#	CAS#		UG/L
(2V)	107-02-8	ACROLEIN	100U
(3V)	107-13-1	ACRYLONITRILE	100U
(4V)	71-43-2	BENZENE	5U
(6V)	56-23-2	CARBON TETRACHLORIDE	5U
(7V)	108-90-7	CLOROBENZENE	5U
(10V)	107-06-2	1,2-DICHLOROETHANE	5U
(11V)	71-55-6	1,1,1-TRICHLOROETHANE	5U
(13V)	75-34-3	1,1-DICHLOROETHANE	5U
(14V)	79-00-5	1,1,2-TRICHLOROETHANE	5U
(15V)	79-34-5	1,1,2,2-TETRACHLOROETHANE	10U
(16V)	75-00-3	CHLOROETHANE	10U
(19V)	110-75-8	2-CHLOROETHYLVINYLETHER	10U
(23V)	67-66-3	CHLOROFORM	5U
(29V)	75-35-4	1,1-DICHLOROETHENE	5U
(30V)	156-60-5	TRANS-1,2-DICHLOROETHENE	5U
(32V)	78-87-5	1,2-DICHLOROPROPANE	10U
(33V)	10061-02-6	TRANS-1,3-DICHLOROPROPENE	5U
	10061-01-05	CIS-1,3-DICHLOROPROPENE	5J
(38V)	100-41-4	ETHYLBENZENE	5U
(44V)	75-09-2	METHYLENE CHLORIDE	5U
(45V)	74-87-3	CHLOROMETHANE	10U
(46V)	74-83-9	BROMOMETHANE	10U
(47V)	75-25-2	BROMOFORM	10U
(48V)	75-27-4	BROMODICHLOROMETHANE	5U
(49V)	75-49-4	FLUOROTRICHLOROMETHANE	5U
(50V)	75-71-8	DICHLORODIFLUOROMETHANE	NA
(51V)	124-48-1	CHLORODIBROMOMETHANE	5U
(85V)	127-18-4	TETRACHLOROETHENE	5U
(86V)	108-88-3	TOLUENE	5U
(87V)	79-01-6	TRICHLOROETHENE	5U
(88V)	75-01-4	VINYL CHLORIDE	10U
	67-64-1	ACETONE	5U
	78-93-3	2-BUTANONE	5U
	75-15-0	CARBON DISULFIDE	1U
	519-78-6	2-HEXANONE	5U
	108-10-1	4-METHYL-2-PENTANONE	5U
	100-42-5	STYRENE	5U
	108-05-4	VINYL ACETATE	5U
	1330-20-7	TOTAL XYLENES	5U

PESTICIDES

CONCENTRATION ____ LOW
DATE EXTRACTED ____ 9/13/84
DATE ANALYZED ____ 10/4/84
PERCENT MOISTURE ____ N/A
CONCENTRATION/DIL. FACTOR ---- 10

PP#	CAS#		UG/L
(89P)	309-00-2	ALDRIN	.005U
(90P)	60-57-1	DIELDRIN	.005U
(91P)	57-74-9	CHLORDANE	.05U
(92P)	50-29-3	4,4'DDT	.01U
(93P)	72-55-9	4,4'DDE	.005U
(94P)	72-54-8	4,4'DDD	.1U
(95P)	115-29-7	ALPHA-ENDOSULFAN	.005U
(96P)	115-29-7	BETA-ENDOSULFAN	.005U
(97P)	1031-07-8	ENDOSULFAN SULFATE	.01U
(98P)	72-20-8	ENDRIN	.005U
(99P)	7421-93-4	ENDRIN ALDEHYDE	.01U
(100P)	76-44-8	HEPTACHLOR	.005U
(101P)	1024-57-3	HEPTACHLOR EPOXIDE	.005U
(102P)	319-84-6	ALPHA-BHC	.005U
(103P)	319-85-7	BETA-BHC	.005U
(104P)	319-86-8	DELTA-BHC	.005U
(105P)	58-89-9	GAMMA-BHC (LINDANE)	.005U
106P	53469-21-9	PCB-1242	.05U
107P	11097-69-1	PCB-1254	.1U
108P	11106-28-2	PCB-1221	.1U
109P	11141-16-5	PCB-1232	.05U
110P	12672-29-6	PCB-1248	.1U
111P	11096-82-5	PCB-1260	.1U
112P	12676-11-2	PCB-1016	.2U
113P	8001-35-2	TOXAPHENE	.05U

USEPA-SAMPLE MANAGEMENT OFFICE
PO BOX 818 ALEXANDRIA,VA 22313

0000057

SAMPLE NO.
J4548

ORGANICS ANALYSIS DATA SHEET

LABORATORY NAME______________PEDCO ENV.
LAB SAMPLE ID NO______________DT148
SAMPLE MATRIX______________WATER
DATA RELEASE AUTHORIZED______

CASE NO:______________3206
QC REPORT NO.______________
CONTRACT NO.______________68-01-6779
DATE SAMPLE RECEIVED______________9/13/84

SEMIVOLATILE COMPOUNDS

CONCENTRATION______________LOW
DATE EXTRACTED______________9/13/84
DATE ANALYZED______________9/26/84
PER CENT MOISTURE______________N/A
CONCENTRATION/DIL. FACTOR-----500

PP#	CAS#		UG/L	
(21A)	88-06-2	2,4,6-TRICHLOROPHENOL	10	U
(22A)	59-50-7	P-CHLORO-M-CRESOL	10	
(24A)	95-57-8	2-CHLOROPHENOL	10	
(31A)	120-83-2	2,4-DICHLOROPHENOL	10	
(34A)	105-67-9	2,4-DIMETHYLPHENOL	10	
(57A)	88-75-5	2-NITROPHENOL	20	
(58A)	100-02-7	4-NITROPHENOL	50	
(59A)	51-28-5	2,4-DINITROPHENOL	50	
(60A)	534-52-1	4,6-DINITRO-O-CRESOL	20	
(64A)	87-86-5	PENTACHLOROPHENOL	10	
(65A)	108-95-2	PHENOL	10	
	65-85-0	BENZOIC ACID	100	
	95-48-7	2-METHYLPHENOL	5	
	108-39-4	4-METHYLPHENOL	5	
	95-95-4	2,4,5-TRICHLOROPHENOL	100	
(1B)	83-32-9	ACENAPTHENE	10	
(5B)	92-87-5	BENZIDINE	40	
(8B)	120-82-1	1,2,4-TRICHLOROBENZENE	10	
(9B)	118-74-1	HEXACHLOROBENZENE	10	
(12B)	67-72-1	HEXACHLOROETHANE	10	
(18B)	111-44-4	BIS(2-CHLOROETHYL)ETHER	10	
(20B)	91-58-7	2-CHLORONAPTHALENE	10	
(25B)	95-50-1	1,2-DICHLOROBENZENE	10	
(26B)	541-73-1	1,3-DICHLOROBENZENE	10	
(27B)	106-46-7	1,4-DICHLOROBENZENE	10	
(28B)	91-94-1	3,3'-DICHLOROBENZIDINE	20	
(35B)	121-14-2	2,4-DINITROTOLUENE	20	
(36B)	606-20-2	2,6-DINITROTOLUENE	20	
(37B)	122-66-7	1,2-DIPHENYLHYDRAZINE	20	
(39B)	206-44-0	FLUORANTHENE	10	
(40B)	7005-72-3	4-CHLOROPHENYLPHENYLETHER	10	
(41B)	101-55-3	4-BROMPHENYLPHENYLETHER	10	
(42B)	39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	20	
(43B)	111-91-1	BIS(2-CHLORETHOXY)METHANE	20	U

PP#	CAS#		UG/L	
(52B)	87-68-3	HEXACHLOROBUTADIENE	10	U
(53B)	77-47-4	HEXACHLOROCYCLOPENTADIENE	10	
(54B)	78-59-1	ISOPHORONE	10	
(55B)	91-20-3	NAPTHALENE	10	
(56B)	98-95-3	NITROBENZENE	10	
(62B)	86-30-6	N-NITROSODIPHENYLAMINE	10	
(63B)	621-64-7	N-NITROSODIPROPYLAMINE	10	
(66B)	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	82.6	
(67B)	85-68-7	BENZYLBUTYL PHTHALATE	2.8	
(68B)	84-74-2	DI-N-BUTYL PHTHALATE	22.6	
(69B)	117-84-0	DI-N-OCTYL PHTHALATE	10	
(70B)	84-66-2	DIETHYL PHTHALATE	3.6	
(71B)	131-11-3	DIMETHYL PHTHALATE	10	
(72B)	56-55-3	BENZO(A)ANTHRACENE	10	
(73B)	50-32-8	BENZO(A)PYRENE	20	
(74B)	205-99-2	BENZO(B)FLUORANTHENE AND/	20	
(75B)	207-08-9	BENZO(K)FLUORANTHENE OR	20	
(76B)	218-01-9	CHRYSENE	20	
(77B)	208-96-8	ACENAPTHYLENE	10	
(78B)	120-12-7	ANTHRACENE	10	
(79B)	191-24-2	BENZO(GHI)PERYLENE	20	
(80B)	86-73-7	FLUORENE	10	
(81B)	85-01-8	PHENANTHRENE	10	
(82B)	53-70-3	DIBENZO(AH)ANTHRACENE	20	
(83B)	193-39-5	INDENO(123-CD)PYRENE	20	
(84B)	129-00-0	PYRENE	10	
	62-53-3	ANILINE	5	
	100-51-6	BENZYL ALCOHOL	20	
	106-47-8	4-CHLOROANILINE	50	
	132-64-9	DIBENZOFURAN	10	
	91-57-6	2-METHYLNAPTHALENE	20	
	88-74-4	2-NITROANILINE	100	
	99-09-2	3-NITROANILINE	100	
	100-01-6	4-NITROANILINE	100	U

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USEPA-SAMPLE MANAGEMENT OFFICE
PO BOX 818 ALEXANDRIA,VA 22313

0000009

SAMPLE NO.
J4549

ORGANICS ANALYSIS DATA SHEET

LABORATORY NAME PEDCO ENV.
LAB SAMPLE ID NO DT149
SAMPLE MATRIX WATER
DATA RELEASE AUTHORIZED

CASE NO: 3206
QC REPORT NO.
CONTRACT NO. 68-01-6779
DATE SAMPLE RECEIVED 9/13/84

VOLATILES

CONCENTRATION LOW
DATE PREPARED 9/13/84
DATE ANALYZED 9/13/84
PER CENT MOISTURE N/A
CONCENTRATION/DIL. FACTOR----0.2

PP#	CAS#		UG/L
(2V)	107-02-8	ACROLEIN	100U
(3V)	107-13-1	ACRYLONITRILE	100U
(4V)	71-43-2	BENZENE	5U
(6V)	56-23-2	CARBON TETRACHLORIDE	5U
(7V)	108-90-7	CLOROBENZENE	5U
(10V)	107-06-2	1,2-DICHLOROETHANE	5U
(11V)	71-55-6	1,1,1-TRICHLOROETHANE	5U
(13V)	75-34-3	1,1-DICHLOROETHANE	5U
(14V)	79-00-5	1,1,2-TRICHLOROETHANE	5U
(15V)	79-34-5	1,1,2,2-TETRACHLOROETHANE	10U
(16V)	75-00-3	CHLOROETHANE	10U
(19V)	110-75-8	2-CHLOROETHYLVINYLETHER	10U
(23V)	67-66-3	CHLOROFORM	5U
(29V)	75-35-4	1,1-DICHLOROETHENE	5U
(30V)	156-60-5	TRANS-1,2-DICHLOROETHENE	5U
(32V)	78-87-5	1,2-DICHLOROPROPANE	10U
(33V)	10061-02-6	TRANS-1,3-DICHLOROPROPENE	5U
	10061-01-0	5CIS-1,3-DICHLOROPROPENE	5U
(38V)	100-41-4	ETHYLBENZENE	5U
(44V)	75-09-2	METHYLENE CHLORIDE	12.1 M
(45V)	74-87-3	CHLOROMETHANE	10U
(46V)	74-83-9	BROMOMETHANE	10U
(47V)	75-25-2	BROMOFORM	10U
(48V)	75-27-4	BROMODICHLOROMETHANE	5U
(49V)	75-69-4	FLUOROTRICHLOROMETHANE	5U
(50V)	75-71-8	DICHLORODIFLUOROMETHANE	NA
(51V)	124-48-1	CHLORODIBROMOMETHANE	5U
(85V)	127-18-4	TETRACHLOROETHENE	5U
(86V)	108-88-3	TOLUENE	5U
(87V)	79-01-6	TRICHLOROETHENE	5U
(88V)	75-01-4	VINYL CHLORIDE	10U
	67-64-1	ACETONE	5U
	78-93-3	2-BUTANONE	5U
	75-15-0	CARBON DISULFIDE	1U
	519-78-6	2-HEXANONE	5U
	108-10-1	4-METHYL-2-PENTANONE	5U
	100-42-5	STYRENE	5U
	108-05-4	VINYL ACETATE	5U
	1330-20-7	TOTAL XYLENES	5U

PESTICIDES

CONCENTRATION LOW
DATE EXTRACTED 9/13/34
DATE ANALYZED 10/4/84
PERCENT MOISTURE N/A
CONCENTRATION/DIL. FACTOR----10

PP#	CAS#		UG/L
(89P)	309-00-2	ALDRIN	.005U
(90P)	60-57-1	DIELDRIN	.005U
(91P)	57-74-9	CHLORDANE	.05U
(92P)	50-29-3	4,4'DDT	.01U
(93P)	72-55-9	4,4'DDE	.005U
(94P)	72-54-8	4,4'DDD	.1U
(95P)	115-29-7	ALPHA-ENDOSULFAN	.005U
(96P)	115-29-7	BETA-ENDOSULFAN	.005U
(97P)	1031-07-8	ENDOSULFAN SULFATE	.01U
(98P)	72-20-3	ENDRIN	.005U
(99P)	7421-93-4	ENDRIN ALDEHYDE	.01U
(100P)	76-44-8	HEPTACHLOR	.005U
(101P)	1024-57-3	HEPTACHLOR EPOXIDE	.005U
(102P)	319-84-6	ALPHA-BHC	.005U
(103P)	319-85-7	BETA-BHC	.005U
(104P)	319-86-8	DELTA-BHC	.005U
(105P)	58-89-9	GAMMA-BHC (LINDANE)	.005U
106P	53469-21-9	PCB-1242	.05U
107P	11097-69-1	PCB-1254	.1U
108P	11104-28-2	PCB-1221	.1U
109P	11141-16-5	PCB-1232	.050
110P	12672-29-6	PCB-1248	.1U
111P	11096-82-5	PCB-1260	.1U
112P	12674-11-2	PCB-1016	.2U
113P	8001-35-2	TOXAPHENE	.05U

USEPA-SAMPLE MANAGEMENT OFFICE
PO BOX 818 ALEXANDRIA,VA 22313

0000J1U

SAMPLE NO.
J4549

ORGANICS ANALYSIS DATA SHEET

LABORATORY NAME______________PEDCO ENV.
LAB SAMPLE ID NO______________DT149
SAMPLE MATRIX______________WATER
DATA RELEASE AUTHORIZED______ AC

CASE NO:______________3206
QC REPORT NO.______________
CONTRACT NO.______________68-01-6779
DATE SAMPLE RECEIVED______________9/13/34

SEMIVOLATILE COMPOUNDS

CONCENTRATION______________LOW
DATE EXTRACTED______________9/13/84
DATE ANALYZED______________9/26/84
PER CENT MOISTURE______________N/A
CONCENTRATION/DIL. FACTOR-----500

PP#	CAS#		UG/L	
(21A)	88-06-2	2,4,6-TRICHLOROPHENOL	10	J
22A)	59-50-7	P-CHLORO-M-CRESOL	10	
(24A)	95-57-3	2-CHLOROPHENOL	10	
(31A)	120-83-2	2,4-DICHLOROPHENOL	10	
(34A)	105-67-9	2,4-DIMETHYLPHENOL	10	
(57A)	88-75-5	2-NITROPHENOL	20	
(58A)	100-02-7	4-NITROPHENOL	50	
(59A)	51-23-5	2,4-DINITROPHENOL	50	
(60A)	534-52-1	4,6-DINITRO-O-CRESOL	20	
(64A)	87-86-5	PENTACHLOROPHENOL	10	
(65A)	108-95-2	PHENOL	10	
	65-85-0	BENZOIC ACID	100	
	95-43-7	2-METHYLPHENOL	5	
	108-39-4	4-METHYLPHENOL	5	
	95-95-4	2,4,5-TRICHLOROPHENOL	100	
(1B)	83-32-9	ACENAPTHENE	10	
(5B)	92-37-5	BENZIDINE	40	
(8B)	120-32-1	1,2,4-TRICHLOROBENZENE	10	
(9B)	118-74-1	HEXACHLOROBENZENE	10	
(12B)	67-72-1	HEXACHLOROETHANE	10	
(18B)	111-46-4	BIS(2-CHLOROETHYL)ETHER	10	
(20B)	91-58-7	2-CHLORONAPTHALENE	10	
(25B)	95-50-1	1,2-DICHLOROBENZENE	10	
(26B)	541-73-1	1,3-DICHLOROBENZENE	10	
(27B)	106-46-7	1,6-DICHLOROBENZENE	10	
(28B)	91-94-1	3,3'-DICHLOROBENZIDINE	20	
(35B)	121-14-2	2,4-DINITROTOLUENE	20	
(36B)	606-20-2	2,6-DINITROTOLUENE	20	
(37B)	122-66-7	1,2-DIPHENYLHYDRAZINE	20	
(39B)	206-44-0	FLUORANTHENE	10	
(60B)	7005-72-3	4-CHLOROPHENYLPHENYLETHER	10	
(41B)	101-55-3	4-BROMPHENYLPHENYLETHER	10	
(62B)	39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	20	
(43B)	111-91-1	BIS(2-CHLORETHOXY)METHANE	20	J

PP#	CAS#		UG/L	
(52B)	87-68-3	HEXACHLOROBUTADIENE	10	J
(53B)	77-47-4	HEXACHLOROCYCLOPENTADIENE	10	
(54B)	78-59-1	ISOPHORONE	10	
(55B)	91-20-3	NAPTHALENE	10	
(56B)	98-95-3	NITROBENZENE	10	
(62B)	86-30-6	N-NITROSODIPHENYLAMINE	10	
(63B)	621-64-7	N-NITROSODIPROPYLAMINE	10	
(66B)	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	20.6	
(67B)	85-68-7	BENZYLBUTYL PHTHALATE	10	
(68B)	84-74-2	DI-N-BUTYL PHTHALATE	9.2	
(69B)	117-84-0	DI-N-OCTYL PHTHALATE	10	
(70B)	84-66-2	DIETHYL PHTHALATE	10	
(71B)	131-11-3	DIMETHYL PHTHALATE	10	
(72B)	56-55-3	BENZO(A)ANTHRACENE	10	
(73B)	50-32-3	BENZO(A)PYRENE	20	
(74B)	205-99-2	BENZO(B)FLUORANTHENE AND/	20	
(75B)	207-08-9	BENZO(K)FLUORANTHENE OR	20	
(76B)	218-01-9	CHRYSENE	20	
(77B)	208-96-8	ACENAPTHYLENE	10	
(78B)	120-12-7	ANTHRACENE	10	
(79B)	191-24-2	BENZO(GHI)PERYLENE	20	
(80B)	86-73-7	FLUORENE	10	
(81B)	85-01-8	PHENANTHRENE	10	
(82B)	53-70-3	DIBENZO(AH)ANTHRACENE	20	
(83B)	193-39-5	INDENO(123-CD)PYRENE	20	
(84B)	129-00-0	PYRENE	10	
	62-53-3	ANILINE	5	
	100-51-6	BENZYL ALCOHOL	20	
	106-47-8	4-CHLOROANILINE	50	
	132-64-9	DIBENZOFURAN	10	
	91-57-6	2-METHYLNAPTHALENE	20	
	88-74-4	2-NITROANILINE	100	
	99-09-2	3-NITROANILINE	100	
	100-01-6	4-NITROANILINE	100	J

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FORM III

WATER SURROGATE PERCENT RECOVERY SUMMARY

LOW LEVEL ✓
WATER ✓
QC REPORT NO. ______

CONTRACTOR PEDCo Environmental
MED. LEVEL ______

CONTRACT NO. 68-01-6779
HIGH LEVEL ______
OTHER (Specify) ______

|--------Volatile --------||-------------------Semi-Volatile----------------------------|(Pesticide)--(Dioxin)|

Report No.	D_8 Toluene (66-119)	BPB (85-121)	D_4-1,2-Dichloroethane (77-120)	D_5-Nitrobenzene (41-120)	2-Fluorobiphenyl (44-119)	D_{14}-p-Terphenyl (33-128)	D_5-Phenol (15-96)	2-Fluorophenol (23-107)	2,4,6-Tribromophenol (20-105)	Dibutyl-Chlorendate (67-114)**	1,2,3,4-TCDD (23-14?)
Blank	109	86	97	58	90	196*	6*	20*	42	95	
J2271	113	90	95	56	104	130*	78	52	66	69	
J4548	114	92	97	74	112	80	16	44	44	22*	
J4549	111	96	101	70	112	186*	14*	44	60	120*	
MS	117	99	99	26*	42*	72	44	82	46		
MSD	118	95	98	78	114	142*	14*	24	6*		

* Asterisked values are outside of QC limits.
** Advisory Limit

Comments:

Volatiles: 0 out of 14; outside of QC limits

900000

MATRIX SPIKE DUPLICATE/RECOVERY

CASE NO. 3206
LOW LEVEL ✓
WATER
QC REPORT NO.

CONTRACTOR PEI Assoc.
MED. LEVEL
SOIL/SED.

CONTRACT NO. 68-01-6779
HIGH LEVEL
OTHER (Specify)
UNITS (Circle) ug/Kg ug/l

FRACTION	COMPOUND	CONC. SPIKE ADDED	CONC. MS	% REC.	CONC. MSD	% REC.	RPD	QC LIMITS* RPD	QC LIMITS* RECOVERY	COMMENTS
VOA	1,1-Dichloroethylene	49.9	57.2	115	59.8	120	4	<15%	51-151	
SMO #	Trichloroethylene	55.4	64.5	116	65.4	118	2	<15%	74-128	
J4548	Chlorobenzene	42.3	59.2	140*	64.3	152*	8	<15%	67-131	
	Toluene	42.1	52.3	124	51.7	123	1	<15%	58-132	
	Benzene	41.7	44.9	108	45.0	108	0	<15%	56-132	
B/N	1,2,4-Trichlorobenzene	51.7	11.4	22*	40.4	78	112*	<50%	38-108	
SMO #	Acenaphthene	50.3	22.1	44*	55.4	110	86*	<50%	57-115	
J4548	2,4-Dinitrotoluene	52.2	4.0	8*	15.8	30*	116*	<50%	43-113	
	Di-N-Butylphthalate	69.5	14.6	21	39.8	57	92*	<50%	13-113	
	Pyrene	65.0	50.4	78	109.4	168*	73*	<50%	25-137	
	N-Nitrosodi-N-Propylamine	56.1	10.8	19*	38.8	69	114*	<50%	34-114	
	1,4-Dichlorobenzene	60.7	11.6	19*	45.0	75	119*	<50%	33-103	
ACID	Pentachlorophenol	101.2	9.6	9*	11.8	12*	29	<40%	19-123	
SMO #	Phenol	103.8	46.4	45	16.8	16*	93*	<40%	23- 81	
J4548	2-Chlorophenol	110.4	74.8	68	22 8	21*	109*	<40%	33-107	
	P-Chloro-M-Cresol	100.8	19.0	19*	8.2	8*	81*	<40%	32-108	
	4-Nitrophenol	100.8	0	0*	0	0*	0	<40%	15- 93	
PEST	Lindane	12.6	12.5	99	12.3	98	1	<40%	87-107	
SMO #	Heptachlor	9.9	7.8	78	7.9	79	1	<40%	43-125	
J2271	Aldrin	10.8	10.0	92	9.9	91	1	<40%	45-109	
	Dieldrin	10.1	10.7	106	10.0	99	7	<40%	56-122	
#2	Endrin	10.4	9.5	91	9.0	86	5	<40%	89-101	
	p,p-DDT	10.1	8.8	87	8.2	81	6	<40%	82-102	

*Asterisked values are outside QC limits.

RPD: VOAs 0 out of 5; outside QC limits
B/N 7 out of 7; outside QC limits
ACID 3 out of 5; outside QC limits
PEST 0 out of 6; outside QC limits

RECOVERY: VOAs 2 out of 10; outside QC limits
B/N 7 out of 14; outside QC limits
ACID 8 out of 10; outside QC limits
PEST 0 out of 12; outside QC limits

*Date Limits Set 12/82
Revision Due 6/83

FORM V
A-13

REAGLNT BLANK SUMMARY

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Casa No. 3206 Contractor PEI Assoc Contract No. 68-01-6779

FILE ID	DATE OF ANALYSIS	FRACTION	UATRIX	CONC. LEVEL	INST. ID	CAS NUUBCR	COMPOUND (HSL.TIC ON UNKNOWN)	CONC.	UNITS	CROL
VOABLK0913	9-13	VOA	W	L	T		Methylene Chloride	9.6	µg/l	5
							Acetone	11.3	"	10
							2-Butanone	5.0	"	10
BNABLK0926	9-26	BNA	W	L	R		Bis(2-Ethylhexyl) phthalate	17.8	µg/l	10
PestBLK	10-4	PE	W	L	V		None			

Comments:

Bill Jess (513) ...
Pedco Environmental, Inc.
11499 Chester Rd.
Cincinnati, OH. 45246

In Reference to Case No(s):
3206

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log

Date of Call: 11/6/84

Laboratory Name: Pedco Env. Inc.

Lab Contact: Bill Jess

Region: 10

Regional Contact: Jim Farr

Call Initiated By: ___ Laboratory ✓ Region

In reference to data for the following sample number(s):

..., 74547, 74549

Summary of Questions/Issues Discussed:

1) Missing DFTPP massspectrum
2) seemed to be problems with surrogate recoveries and matrix spike recoveries for BNA fraction.
... didn't seem to be any attempt at reextraction ... at least it wasn't acknowledged.

Summary of Resolution:

1) -ll send missing spectra
... ... therefore no ...

Signature: ...

Date: 11/6/84

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

APPENDIX B

SAMPLE DOCUMENTATION
RESOURCE RECOVERY CORPORATION, PASCO, WASHINGTON
CASE NO.: 3206
SITE INSPECTION - 9/12/84
ECOLOGY AND ENVIRONMENT, INC., SEATTLE

APPENDIX B - SAMPLE DOCUMENTATION

FI- 108408 -22

Resource Recovery Corp.

Case No.: 3206

Location Number	Latitude/ Longitude	STORET Station Number	Sample Containers	Date and Time	Custody Form Number	Sample Lab. Number	Sample Type (Grab)	Means of Preservation	Analysis Requested	Destination
Control Well	46° 45' 00"	05A013	2 ½-gal. jars	9/12/84 10:30	10-1282	J 4548	Aqueous	Iced	Extractable Organics	Pedco
	119° 02' 30"		2 40-ml. vials	9/12/84 10:30	10-1282	J 4548	(Grab)	Iced	Volatile Organics	Pedco
			2 1-liter Poly bottles	9/12/84 10:30	10-1283	MJ 9043	Aqueous (Grab)	NaOH HNO_3	Cyanide Heavy Metals	Chem Tech Chem Tech
Well #3	46° 45' 00"	05A014	2 ½-gal. jars	9/12/84 14:30	10-1282	J 2271	Aqueous	Iced	Extractable Organics	Pedco
	119° 02' 30"		2 40-ml. vials	9/12/84 14:30	10-1282	J 2271	(Grab)	Iced	Volatile Organics	Pedco
			2 1-liter Poly bottles	9/12/84 14:30	10-1283	MJ 9045	Aqueous (Grab)	NaOH HNO_3	Cyanide Heavy Metals	Chem Tech Chem Tech
Transfer Blank	-----	-----	2 ½-gal. jars	9/12/84 10:15	10-1282	J 4549	Aqueous	Iced	Extractable Organics	Pedco
			2 40-ml. vials	9/12/84 10:15	10-1282	J 4549	(Grab)	Iced	Volatile Organics	Pedco
			2 1-liter Poly bottles	9/12/84 10:15	10-1283	MJ 9044	Aqueous (Grab)	NaOH HNO_3	Cyanide Heavy Metals	Chem Tech Chem Tech

APPENDIX C

SITE INSPECTION REPORT FORM
9/12/84

RESOURCE RECOVERY CORPORATION
PASCO, WASHINGTON
COMPILED BY
ECOLOGY AND ENVIRONMENT, INC.
SEATTLE, WASHINGTON

EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
WA	WAD991281874

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site): Resource Recovery Corporation	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER: Kahlotus Rd. & Hwy 12				
03 CITY: Pasco	04 STATE: WA	05 ZIP CODE: 99301	06 COUNTY: Franklin	07 COUNTY CODE: 021	08 CONG DIST: 05
09 COORDINATES LATITUDE: 46 15 07.0	LONGITUDE: 119 03 13.5	10 TYPE OF OWNERSHIP (Check one): [X] A. PRIVATE [ ] B. FEDERAL ______ [ ] C. STATE [ ] D. COUNTY [ ] E. MUNICIPAL [ ] F. OTHER ______ [ ] G. UNKNOWN			

III. INSPECTION INFORMATION

01 DATE OF INSPECTION: 9 ,12 , 84 (MONTH DAY YEAR)	02 SITE STATUS: [X] ACTIVE [ ] INACTIVE	03 YEARS OF OPERATION as a hazardous waste site, 1972 to 1980; 1956 (BEGINNING YEAR) / Present (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)

[ ] A. EPA [X] B. EPA CONTRACTOR E & E (Name of firm) [ ] C. MUNICIPAL [ ] D. MUNICIPAL CONTRACTOR ______ (Name of firm)

[X] E. STATE [ ] F. STATE CONTRACTOR ______ (Name of firm) [ ] G. OTHER ______ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Peter Evers	Environmental Chemist	E&E	(206) 624-9537
09 OTHER INSPECTORS	**10 TITLE**	**11 ORGANIZATION**	**12 TELEPHONE NO.**
Rich Brooks	Biologist	E&E	(206) 624-9537
Mike Gallagher	Environmentalist II	WDOE	(206) 753-2353
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Larry Dietrich, Pasco Sanitary Landfill	Owner/Operator	420 E. Ainsworth	(509) 547-4802
John Zillich, Engineering	Project Mgr.	J.U.B. Engineers, Inc.	(509) 783-2144
Consultant to Above.		N.W. Crossing Offiec #201	( )
		2810 W. Clearwater Ave.	( )
		Kennewick, WA 99335	( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
[X] PERMISSION [ ] WARRANT	8:00 a.m.	Sunny & Warm

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)		03 TELEPHONE NO.
Debbie Flood	EPA		(208442-2722
04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NO.**
Christopher M. Nadler	EPA/FIT	E & E	(206)624-9537

08 DATE: 12/12/84 (MONTH DAY YEAR)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
WA	WAD991281874

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [x] A. SOLID
- [x] B. POWDER, FINES
- [x] C. SLUDGE
- [ ] D. OTHER ____ (Specify)
- [ ] E. SLURRY
- [x] F. LIQUID
- [ ] G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS ____

CUBIC YARDS ____

NO. OF DRUMS ____

03 WASTE CHARACTERISTICS (Check all that apply)

- [x] A. TOXIC
- [x] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [x] D. PERSISTENT
- [x] E. SOLUBLE
- [ ] F. INFECTIOUS
- [x] G. FLAMMABLE
- [x] H. IGNITABLE
- [x] I. HIGHLY VOLATILE
- [ ] J. EXPLOSIVE
- [x] K. REACTIVE
- [ ] L. INCOMPATIBLE
- [ ] M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	80-160	drums	
OLW	OILY WASTE	593-681 drums/82,350-150,640 gallons/665,950 pounds		
SOL	SOLVENTS	12,648	gallons	
PSD	PESTICIDES	6,531-10,344 drums/2,813 barrels/680 pails 2,4-D&MCPA		
OCC	OTHER ORGANIC CHEMICALS	19,270-33,212 drums/300,763-675,706 pounds/261,178-290,37		
IOC	INORGANIC CHEMICALS			
ACD	ACIDS	544 drums/692,967 gallons/2,789,910 pounds/1,914 barrels		
BAS	BASES	61,788	gallons	
MES	HEAVY METALS	10,500-11,582 tons/700,901 pounds/11 drums		

IV. HAZARDOUS SUBSTANCES (See appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OCC	Pentachlorophenol	87865	drummed, landfilled	unknown	N/A
PSD	2,4-D	94757	drummed, landfilled	unknown	N/A
MES	Mercury(in Barium Sludge)	7439976	lined pond	unknown	N/A
MES	Chromium	7440473	lined pond (?)	unknown	N/A
PSD	MCPA(4-chloro-2-Methyl phenoxyaceticacid)				
			drummed&landfilled	unknown	N/A
IOC	NH4+		unknown	unknown	N/A
BAS	NaOH	1310732	unknown	unknown	
OCC	DCP (dichlorophenol)	120832 & 87650	~~unknown~~	~~unknown~~	~~N/A~~

V. FEEDSTOCKS (See appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	Mercury	7439976	FDS		
FDS	Chromium	7440473	FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA FILES, SEATTLE, WA
WDOE FILES, OLYMPIA, WA

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
WA	WAD991281874

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: 100
02 ☒ OBSERVED (DATE: 9/12/84) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Analysis of groundwater samples collected during E&E site inspection revealed levels of barium (1,631 (µg/l), beryllium (7 µg/l), chromium (706 µg/l), lead (160 ug/l), and nichel (162 ug/l) above the EPA recommended levels.

01 ☒ B. SURFACE WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: 0
02 ☐ OBSERVED (DATE:) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

No observed release. It appears that due to lack of surface waters and lack of rain, little potential exist for surface water contamination.

01 ☒ C. CONTAMINATION OF AIR
03 POPULATION POTENTIALLY AFFECTED: unknown
02 ☐ OBSERVED (DATE:) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

No observed release. Local farmers and residents expressed concern over burial of 2,4-D and MCPA wastes and their effects on local grapevines.

01 ☒ D. FIRE/EXPLOSIVE CONDITIONS
03 POPULATION POTENTIALLY AFFECTED: unknown
02 ☐ OBSERVED (DATE:) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

No documented evidence of threat.

01 ☒ E. DIRECT CONTACT
03 POPULATION POTENTIALLY AFFECTED: unknown
02 ☐ OBSERVED (DATE:) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

No reported incidents. Site is not fenced and could be accessible to trespassers. WDOE, however, relieved site of a fencing requirement due to "lack of problems experienced without one". Operator's residence is on site.

01 ☒ F. CONTAMINATION OF SOIL
03 AREA POTENTIALLY AFFECTED: unknown (Acres)
02 ☐ OBSERVED (DATE:) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

The liquid wastes were disposed of in unlined trenches. The ground water samples which were collected 9/12/84 revealed heavy metal contamination, therefore the potential exists for soil contamination.

01 ☒ G. DRINKING WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: >100
02 ☐ OBSERVED (DATE:) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None observed. Concern however, for potential seepage from septic disposal area laterally migrating to hazardous waste areas. Also concern for unlined disposal sites leaking into water table aquifer.

01 ☒ H. WORKER EXPOSURE/INJURY
03 WORKERS POTENTIALLY AFFECTED: <10
02 ☐ OBSERVED (DATE:) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None observed. Disposal area coverings are eroding and potential for worker exposure although slight, is possible.

01 ☒ I. POPULATION EXPOSURE/INJURY
03 POPULATION POTENTIALLY AFFECTED: <100
02 ☐ OBSERVED (DATE:) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None observed. Potential for significant population exposure is slight due to wastes being buried, lack of open evaporation ponds and remote location. However, due to lack of fencing around facility results in uncontrolled access.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
WA	WAD991281874

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 [X] J. DAMAGE TO FLORA — 02 [ ] OBSERVED (DATE: ______) — [X] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION

None observed. However, accusations were made in 1973 over the site accepting 2,4-D and MCPA wastes which are toxic to local crops (grapevines).

01 [X] K. DAMAGE TO FAUNA — 02 [ ] OBSERVED (DATE: ______) — [ ] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION (include name(s) of species)

None observed.

01 [X] L. CONTAMINATION OF FOOD CHAIN — 02 [ ] OBSERVED (DATE: ______) — [ ] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION

None observed.

01 [X] M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) — 02 [ ] OBSERVED (DATE: ______) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: <100
04 NARRATIVE DESCRIPTION

Hazardous wastes were disposed in unlined bottom trenches. Wind is eroding the soils covering the trenches.

01 [X] N. DAMAGE TO OFFSITE PROPERTY — 02 [ ] OBSERVED (DATE: ______) — [ ] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION

None observed.

01 [X] O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 [ ] OBSERVED (DATE: ______) — [ ] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION

None observed. Unknown if these systems are in this area.

01 [X] P. ILLEGAL/UNAUTHORIZED DUMPING — 02 [ ] OBSERVED (DATE: ______) — [ ] POTENTIAL — [ ] ALLEGED
04 NARRATIVE DESCRIPTION

None observed.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL OR ALLEGED HAZARDS

None known.

III. TOTAL POPULATION POTENTIALLY AFFECTED: 8,523

IV. COMMENTS

Due tc the nature of wastes disposed of and method of disposal at the site, periodic inspection should be carried out for leakage from disposal areas.

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA Files, Seattle, WA
WDOE Files, Olympia, WA
E&E water sampling on 9/12/84

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
WA	WAD991281874

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☒ G. STATE (Specify)	5301	3/21/73		state waste discharged permit for Resource Recovery Corp.
☐ H. LOCAL (Specify)				
☒ I. OTHER (Specify) State	CUP 82-6			conditional use permit for Pasco Sanitary Landfill.
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☒ A. SURFACE IMPOUNDMENT	unknown	
☒ B. PILES	unknown	
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☒ I. OTHER (Specify) drums below ground unknown		

04 TREATMENT (Check all that apply)

- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☒ H. OTHER Evaporation (Specify)

05 OTHER

☒ A. BUILDINGS ON SITE

06 AREA OF SITE

Approx. 250 (Acres)

07 COMMENTS

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☒ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

Chloro-alkali sludge has been stored in unlined ponds. Barium sludges with mercury are buried in a total lined (4mil polyethylene) trench. Other hazardous wastes have been buried with only a 4mil polyethylene top liner. Sewage wastes are disposed of in an unlined pond.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☒ YES ☐ NO

02 COMMENTS

Site is not fence, but in a remote area.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

WDOE FILES, OLYMPIA, WA
EPA FILES, SEATTLE, WA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART E - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

EPA

I. IDENTIFICATION
01 STATE: WA | 02 SITE NUMBER: WAD991291974

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL	ENDANGERED	AFFECTED	MONITORED	03 DISTANCE TO SITE
COMMUNITY	A. ☒	B. ☐	A. ☐	B. ☐	C. ☐	A. 3.5 (mi)
NON-COMMUNITY	C. ☐	D. ☒	D. ☐	E. ☐	F. ☐	B. onsite (mi)

02 STATUS unknown

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING ☒ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER unknown

03 DISTANCE TO NEAREST DRINKING WATER WELL onsite (mi)

04 DEPTH TO GROUNDWATER 55 (ft)

05 DIRECTION OF GROUNDWATER FLOW SW (assumed)

06 DEPTH TO AQUIFER OF CONCERN 55 (ft)

07 POTENTIAL YIELD OF AQUIFER unknown (gpd)

08 SOLE SOURCE AQUIFER ☐ YES ☒ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

The on-site well provides drinking water for the owner's residence. Other wells around site provide irrigation water.

10 RECHARGE AREA ☐ YES ☒ NO COMMENTS

11 DISCHARGE AREA ☐ YES ☒ NO COMMENTS only through groundwater wells.

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Snake River	☐	2.7 (mi)
Columbia River	☐	3.1 (mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE A. 34 NO. OF PERSONS

TWO (2) MILES OF SITE B. 1,090 NO. OF PERSONS

THREE (3) MILES OF SITE C. 10,640 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION on-site (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE 278

04 DISTANCE TO NEAREST OFF-SITE BUILDING 0.8 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

The area is sparsely populated and agricultural for about 1 mile from site. From 1 to 2 miles, it is suburbs in the direction of Pasco (southwest) and agricultural in the other directions. From 2 to 3 miles, it is urban in the direction of Pasco and agricultural in other directions.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
WA	WA0991281874

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☐ B. $10^{-4} - 10^{-6}$ cm/sec ☐ C. $10^{-4} - 10^{-3}$ cm/sec ☒ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one) Basalt

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☐ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☒ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
Aoprox. 140 (ft)	unknown (ft)	unknown

06 NET PRECIPITATION	07 ~~ONE~~ TWO YEAR 24 HOUR RAINFALL	08 SLOPE SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
-32.0 (in)	0.8 (in)	1-3 %	W-SW	3-5 %

09 FLOOD POTENTIAL

SITE IS IN N/A YEAR FLOODPLAIN

10 N/A ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE A. N/A (mi)

OTHER McNary Wildlife Refuge B. 3.0 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

Not within one (mi)

ENDANGERED SPECIES:

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS PRIME AG LAND	AG LAND
1.0 mile to S.E. A. 2.0 mile west	B. 1.5 (mi)	C. 0.0 (mi)	D. (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site is located in an area similar to Karst topography, in that the area is relatively flat with numerous closed depressions. In a 1.0 mile radius, the topography is a large depression/bowl, with the general land surface raising to the Northeast (elev. 508 feet) and lowering to the Southwest (elev. 340 feet). Over a two mile distance

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

U.S.G.S. Pasco 7.5 minute Quadrangle
Uncontrolled hazardous waste site ranking system users Manual August 1982 .
Basalt Waste Isolation Project Annual Report Fiscal year 1980, RHO-BWI-80-100, document prepared for U.S. Department of Energy under contract DE-AC06-77RL01030 by Rockwell International.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
WA	WAD991281874

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	3	Organics-Pedco Environmental, Inc.	
SURFACE WATER		Cincinnati, OH	Attached
WASTE		Inorganics-Chem Tech New York, NY	To Report
AIR			
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
None	

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☒ AERIAL

02 IN CUSTODY OF Ground-E&E Aerial-Soil Survey
(Name of organization or individual)

03 MAPS
☒ YES
☐ NO

04 LOCATION OF MAPS
E&E; EPA

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

None

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E&E Site Inspection 9/12/84
E&E Site Inspection Report 12/14/84

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
WA	WA0991281874

II. CURRENT OWNER(S) / PARENT COMPANY (if applicable)

CURRENT OWNER(S)			PARENT COMPANY		
01 NAME: Larry Dietrich		02 D+B NUMBER:	08 NAME:		09 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.): 420 E. Ainsworth		04 SIC CODE:	10 STREET ADDRESS (P.O. Box, RFD #, etc.):		11 SIC CODE:
05 CITY: Pasco	06 STATE: WA	07 ZIP CODE: 99301	12 CITY:	13 STATE:	14 ZIP CODE:
01 NAME:		02 D+B NUMBER:	08 NAME:		09 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):		04 SIC CODE:	10 STREET ADDRESS (P.O. Box, RFD #, etc.):		11 SIC CODE:
05 CITY:	06 STATE:	07 ZIP CODE:	12 CITY:	13 STATE:	14 ZIP CODE:
01 NAME:		02 D+B NUMBER:	08 NAME:		09 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):		04 SIC CODE:	10 STREET ADDRESS (P.O. Box, RFD #, etc.):		11 SIC CODE:
05 CITY:	06 STATE:	07 ZIP CODE:	12 CITY:	13 STATE:	14 ZIP CODE:
01 NAME:		02 D+B NUMBER:	08 NAME:		09 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):		04 SIC CODE:	10 STREET ADDRESS (P.O. Box, RFD #, etc.):		11 SIC CODE:
05 CITY:	06 STATE:	07 ZIP CODE:	12 CITY:	13 STATE:	14 ZIP CODE:

III. PREVIOUS OWNER(S) (List most recent first) / IV. REALTY OWNER(S) (if applicable; list most recent first)

PREVIOUS OWNER(S)			REALTY OWNER(S)		
01 NAME: John Dietrich		02 D+B NUMBER:	01 NAME:		02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.): P.O. Box 650		04 SIC CODE:	03 STREET ADDRESS (P.O. Box, RFD #, etc.):		04 SIC CODE:
05 CITY: Pasco	06 STATE: WA	07 ZIP CODE: 99301	05 CITY:	06 STATE:	07 ZIP CODE:
01 NAME:		02 D+B NUMBER:	01 NAME:		02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):		04 SIC CODE:	03 STREET ADDRESS (P.O. Box, RFD #, etc.):		04 SIC CODE:
05 CITY:	06 STATE:	07 ZIP CODE:	05 CITY:	06 STATE:	07 ZIP CODE:
01 NAME:		02 D+B NUMBER:	01 NAME:		02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):		04 SIC CODE:	03 STREET ADDRESS (P.O. Box, RFD #, etc.):		04 SIC CODE:
05 CITY:	06 STATE:	07 ZIP CODE:	05 CITY:	06 STATE:	07 ZIP CODE:

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA Files, Seattle, WA
Personal Communication with Larry Dietrich 9/25/84 and 12/12/84.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
WA	WAD991281874

II. CURRENT OPERATOR (Provide if different from owner)

	Current Operator		Operator's Parent Company (if applicable)
01 NAME	Pasco Sanitary Landfill	10 NAME	
02 D+B NUMBER		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	420 E. Ainsworth	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	
04 SIC CODE		13 SIC CODE	
05 CITY	Pasco	14 CITY	
06 STATE	WA	15 STATE	
07 ZIP CODE	99301	16 ZIP CODE	
08 YEARS OF OPERATION	1982-Present		
09 NAME OF OWNER	Larry Dietrich		

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

	Previous Operator		Previous Operators' Parent Companies (if applicable)
01 NAME	Resource Recovery Corp.	10 NAME	
02 D+B NUMBER		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	5501 Airport Way South	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	
04 SIC CODE		13 SIC CODE	
05 CITY	Seattle	14 CITY	
06 STATE	WA	15 STATE	
07 ZIP CODE	98108	16 ZIP CODE	
08 YEARS OF OPERATION	1972-1981		
09 NAME OF OWNER DURING THIS PERIOD	John Kimberly, President		

01 NAME	John Dietrich	10 NAME	
02 D+B NUMBER		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	P.O. Box 650	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	
04 SIC CODE		13 SIC CODE	
05 CITY	Pasco	14 CITY	
06 STATE	WA	15 STATE	
07 ZIP CODE	99301	16 ZIP CODE	
08 YEARS OF OPERATION	1956-1972		
09 NAME OF OWNER DURING THIS PERIOD	Same		

01 NAME		10 NAME	
02 D+B NUMBER		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		12 STREET ADDRESS (P.O. Box, RFD #, etc.)	
04 SIC CODE		13 SIC CODE	
05 CITY		14 CITY	
06 STATE		15 STATE	
07 ZIP CODE		16 ZIP CODE	
08 YEARS OF OPERATION			
09 NAME OF OWNER DURING THIS PERIOD			

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA Files, Seattle, WA
Personal Communication with Larry Dietrich 9/25/84 and 12/12/84

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
WA	WAD991281874

II. ON-SITE GENERATOR

01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
Chemical Processors, Inc. Ron West			Weyerhaeuser Company		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
5501 Airport Way South			P.O. Box 188		
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
Seattle	WA	98108	Longview	WA	98632
01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
Chevron Chemical Co.			Rhone Ponlenc Chemical Co.		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
P.O. Box 3883			6200 N.W. St. Helens Rd.		
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
San Francisco	CA	94119	Portland	OR	97210

IV. TRANSPORTER(S)

01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
Basin Disposal Inc.					
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
1210 S. Grey (P.O. Box 650)					
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
Pasco	WA	99301			
01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
Kennewick Disposal Co.			Resource Recovery Corp.		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
1611 S. Washington St. PO Box 6088			5501 Airport Way South		
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
Kennewick	WA	99336	Seattle	WA	98108

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA Erris Files, Notification of Hazardous Waste Site (EPA Form 8900-1)
Personal Communication w/ Larry Dietrich 9/25/84

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
WA	WAD991281874

PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ D. SPILLED MATERIAL REMOVED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ E. CONTAMINATED SOIL REMOVED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☒ F. WASTE REPACKAGED 02 DATE 1973 03 AGENCY ______
04 DESCRIPTION Chloro-alkali sludge was moved from an unlined lagoon to a lined lagoon.

01 ☐ G. WASTE DISPOSED ELSEWHERE 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ H. ON SITE BURIAL 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ I. IN SITU CHEMICAL TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ J. IN SITU BIOLOGICAL TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ K. IN SITU PHYSICAL TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ L. ENCAPSULATION 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ M. EMERGENCY WASTE TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ N. CUTOFF WALLS 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ O. EMERGENCY DIKING SURFACE WATER DIVERSION 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ P. CUTOFF TRENCHES SUMP 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ Q. SUBSURFACE CUTOFF WALL 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
WA	WAD991281874

II PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ S. CAPPING/COVERING 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ T. BULK TANKAGE REPAIRED 02 CATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ U. GROUT CURTAIN CONSTRUCTED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ V. BOTTOM SEALED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ W. GAS CONTROL 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ X. FIRE CONTROL 02 OATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ Y. LEACHATE TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ Z. AREA EVACUATED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ 1. ACCESS TO SITE RESTRICTED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ 2. POPULATION RELOCATED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ 3. OTHER REMEDIAL ACTIVITIES 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

WDOE Site Files, Olympia

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
WA	WAD991281874

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☒ YES ☐ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

3-17-84 Recommendation of enforcement action-problems with sewage handling practices.

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

WDOE Site Files, Olympia, WA

APPENDIX D

PHOTOGRAPHIC DOCUMENTATION

RESOURCE RECOVERY CORPORATION
PASCO, WASHINGTON

SITE INSPECTION - 9/12/84

COMPILED BY
ECOLOGY AND ENVIRONMENT, INC.
SEATTLE, WASHINGTON

PHOTO IDENTIFICATION SHEET

Type of Camera: Nikon FM

TDD No.: 10-8408-22

Type of Film: Kodachrome

Resource Recovery Corporation, Pasco WA

EPA No.:

Photo No.	Date	Time	Taken by	Description of Photo
1	9/12/84	0750	Rich Brooks	Entrance Gate taken in N-NW direction
2	"	0830	" "	Waste Disposal Area A - taken in S direction
3	"	0835	" "	Waste Disposal Area C&D - taken in E direction
4	"	0840	" "	Waste Disposal Area C&D - taken in E direction
5	"	0845	" "	Waste Disposal Area C&D - taken in E direction
6	"	0850	" "	Dry Well - taken in SW direction
7	"	0855	" "	Waste Disposal Area E & Dry Well - taken in NE direction
8	"	0900	" "	Waste Disposal Area E - taken in NW direction
9	"	0905	" "	Sewage Lagoons - taken in E direction
10	"	0910	" "	Waste Disposal Area B - taken in E direction
11	"	0915	" "	Waste Disposal Area B & Sensor - taken in N direction
12	"	0920	" "	Wide Angle of Whole Site - taken in S direction

PHOTO IDENTIFICATION SHEET

Type of Camera: Nikon FM

TDD No.: 10-8408-22

Type of Film: Kodachrome

Resource Recovery Corporation, Pasco WA

EPA No.:

Photo No.	Date	Time	Taken by	Description of Photo
13	9/12/84	1031	Rich Brooks	Control Well - taken in W direction
14	"	1031	" "	Control Well - taken in S-SE direction
15	"	1353	" "	Well #3 - downgradient - taken in N direction

Ref #18

RECORD OF COMMUNICATION	[X] PHONE CALL [ ] DISCUSSION [ ] FIELD TRIP [ ] CONFERENCE [ ] OTHER (SPECIFY) (Record of item checked above)	
TO: Richard Heinemeyer Lakeview Mobile Home Park	FROM: David Bennett NPL Coord-R10	DATE 7/17/87 TIME 9:30 am

SUBJECT

Location of Wells

SUMMARY OF COMMUNICATION

All four wells are located in the trailer park + are interconnected prior to distribution. Trailer park is north of Sacajawea State Park.

CONCLUSIONS, ACTION TAKEN OR REQUIRED

INFORMATION COPIES

TO: Pasco Landfill File

EPA Form 1300-6 (7-72) REPLACES EPA HQ FORM 5300-5 WHICH MAY BE USED UNTIL SUPPLY IS EXHAUSTED.